## Dante Alighieri

# Commedia 

A Digital Edition

Edited by<br>Prue Shaw<br>Emeritus Reader In Italian, University College London<br>Web Site Realization: Peter Robinson

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Peter Robinson and Prue Shaw: The Phylogenetic Analysis
David Robey: Appendix B. Metrical Markup of the Commedia Text
Barbara Bordalejo: Appendix C. The Encoding System
Peter Robinson: Appendix D. Making the Second Edition

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I am deeply convinced that, be the tangible and positive results great or small, no labour bestowed on the study or elucidation of this, perhaps, the greatest work of human genius in any language, can be felt to be in vain by one who has expended it.

Edward Moore, Contributions, xlv-xlvi

This electronic edition of the Commedia is dedicated to the memory of Karl Witte, Edward Moore, Michele Barbi, Giuseppe Vandelli, Mario Casella and Giorgio Petrocchi.
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## Preface to the Second Edition 2021

The first edition of the electronic Commedia, which came out in 2010, appeared in two forms: a DVD-ROM, and a web site hosted and managed by Scholarly Digital Editions (SDE), one of the original co-publishers. Since 2010 the DVDROM has been superseded as a technology, though the platform on which the web site was built is still fully functional. Scholarly Digital Editions is now publishing under the imprint Inkless Editions.

This second edition, unlike the first, is available only as a web site, created under the auspices of Inkless and the Fondazione Ezio Franceschini, and hosted and managed by the second with the support of DARIAH.IT. The new site, unlike the old one, will be available to scholars, researchers and students at no charge. The original site, now also free to users, will remain online; the two sites will have links to one another. The content of the two sites, the original first edition and this new second edition, is broadly similar but not identical, as explained below.

The chief difference between the old site and the new is the inclusion of the images for ms. Urb. lat. 366, which for contractual reasons could not be included in the first edition. Also new is a detailed account of the technology on which the site is built, which forms Appendix D.

The way the images, transcriptions and variant files interrelate on screen has changed in this new edition, allowing for greater flexibility for readers using screens of different sizes, or interested only in one aspect of the display. Navigating around the site is as simple and intuitive as it has always been; indeed, arguably more so. The software used for enlarging the images, which replaces the Zoomify software used for this purpose in the first edition, is far simpler and speedier to use, and allows for greater magnification. The text of Petrocchi's
edizione nazionale can be viewed on its own (by choosing PET from the list of mss.), as can the Sanguineti text (by choosing FS).

Users of this electronic edition are urged to read the detailed acount of the methodology of the transcriptions (III. General Transcription Note), and to consult the separate sections devoted to the particular characteristics of each manuscript which follow (IV. Manuscript Transcription Notes: ms. Ash; and so on). Scribal glosses and occasional marginal comments now normally appear as part of the transcription. Editorial notes on particular difficulties or points of interest in any given manuscript appear as footnotes below the transcription. The Introduction of 2010 remains just as it was, with one small adjustment, as described below. In general, where the original version spoke of the DVDROM, this has been amended everywhere to the electronic edition or web site.

The bibliography has been updated. A selective list of editions, books and articles which have been published since 2010, in a decade of remarkable productivity for Dante studies, is appended in a section at the end of the original bibliography. The full title and publication details of books and articles referred to in an abbreviated form in the notes to the Introduction can be found in the Table of Abbreviations. For more information about the project and a full account of the edition and its history, see the Foreword and the editor's Introduction.

Finally, it seems important to clarify a surprising misapprehension that has arisen in relation to the Commedia digital edition. In his Everything You Always Wanted to Know about Lachmann's Method (2014), Paolo Trovato makes the statement: 'I have wondered why, in Robinson's judgment, LauSC ... is closer to the archetype of the Commedia than U , that is, a manuscript whose exceptional textual quality has been unanimously acknowledged by the specialists ...'. He might well wonder, since this is not something Peter Robinson has ever maintained. Trovato's words run precisely counter to what
we concluded about LauSC in the digital Commedia project. That conclusion is set out unambiguously in my introduction:
'we find in the scriptio prior of the Laurenziano di Santa Croce manuscript a confluence of readings from four of Petrocchi's five sub-archetypes ( $a, b, c$ and $e)$. It seems reasonable to conclude that those scholars who regard LauSC as inaffidable, because it is an editio variorum, are quite right.'

Our evaluation of the testimony of LauSC - reached by us quite independently, using computer methods - is virtually indistinguishable from Trovato's own. Trovato calls LauSC 'una raffinata editio variorum', which (and here he echoes Casella and Petrocchi, citing the latter) 'oscilla continuamente tra un raggruppamento e l'altro' (Nuove prospettive 2007, p. 636); and again, on the same page, it is 'un artificiato discendente di un affine di Mart + Triv (a), sapientemente miscelato con non sappiamo quante altre sottofamiglie'. Sanguineti's original view - the one on which his edition of 2001 is based, the one we were testing in the electronic Commedia project - was that LauSC constituted a separate branch of the stemma, and thus $50 \%$ of $\alpha$ and $25 \%$ of the stemma as a whole (in short, a late manuscript of unique importance for establishing the text of the poem). The computer analysis showed this to be untenable. Trovato, though he agrees with Sanguineti on many points, agrees with us, against Sanguineti, about the character and value of LauSC. (Sanguineti later changed his mind about the value of LauSC: see Nuove prospettive, p. 652.) I have rewritten a few sentences in 'The Phylogenetic Analysis' which discuss the original and corrected readings in LauSC to make our position even clearer.

Students and scholars who now have free access to the website are urged to read my introduction and to make up their own minds about the value of the digital edition. Let me briefly enumerate some of its advantages:
i. The speed and ease of checking manuscript readings against the image (even Petrocchi, a model of scholarly exactness and scruple, makes the odd slip, and
misreports a manuscript reading some forty-odd times). We have no way of checking if readings reported by Trovato (or members of his team) have been transcribed accurately; the same goes for Sanguineti.
ii. The possibility of executing in seconds complicated searches that would take weeks or even months using conventional materials and methods. For example: at how many points does the Sanguineti edition present a reading that differs from the Petrocchi edition? answer: 1544 times. Another example: how many times does Petrocchi choose readings attested only in the manuscripts Ash and Ham among the Sanguineti seven? answer: five times. Each of these searches was executed in a matter of seconds.
iii. Finally, I cannot stress too highly the sheer pleasure of working directly on these beautiful manuscripts and experiencing the text as some of Dante's earliest readers would have encountered it - even if, paradoxically, one is looking at a computer screen rather than parchment. Even for readers who are not experts in textual criticism and have no interest in questions of critical methodology, the web site offers rich treasures.

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## Foreword 2010

To explain briefly the genesis of the electronic Commedia project: the initial stimulus dates back to the early 1990s, when Peter Robinson and I went to Florence to see Francesco Mazzoni, president of the Società Dantesca Italiana, and tell him about the work we were doing with computers and manuscripts. Two other senior dantisti - Robert Hollander and Rosetta Migliorini Fissi were present at this meeting in the Palagio dell'Arte della Lana, as was Paola Laurella, the secretary of the Società, who has a special interest in computing. We spent an afternoon demonstrating our work and discussing the possible applications of information technology to textual studies. At that time I had been working for some years on the edizione nazionale of the Monarchia using computers to make and store my transcriptions, and I had devised a system for recording textual variants, omissions and interpolations. Peter Robinson had been working on the textual tradition of the Canterbury Tales using computers, was in the process of writing computer programmes specifically tailored to working with manuscripts, and was research officer for the Computers and Manuscripts Project at the Oxford University Centre for Computing in the Humanities.

Professor Mazzoni was keenly interested in what we showed him, but was already committed to working with IBM Italia to utilise and adapt computing techniques to the study of Dante manuscripts within the Società Dantesca. Indeed, like me, he had devised his own system of notation for transcribing manuscripts with the new technology. No collaborative project with the SDI emerged from our meeting, as we had hoped it might; but we agreed to stay in touch about our various ongoing enterprises, with a view to a possible future collaboration.

Another step towards setting up the present project was taken at the Second International Dante Seminar held at Ascona in 1997, where Federico Sanguineti
gave a paper describing his planned new edition of the Commedia, and outlined his thinking about the textual tradition of the poem which lay behind it specifically, his belief that only a small number of manuscripts (eight, later reduced to seven) were necessary and sufficient for a critical edition of the text. Two Australian scholars, Diana Modesto and Mary Dwyer, were struck by the fact that such a small number of manuscripts would make a computer project a feasible possibility, and they approached first Sanguineti and then Robinson with the suggestion that such a project be set up as a collaborative enterprise, with the specific aim of testing this new stemmatic hypothesis using computer tools. Sanguineti was enthusiastic, and Robinson agreed to support the technical side of the project, provided that I too was included in the team, since he believed my philological expertise combined with my experience using computers on the Monarchia edition would be especially valuable. Two preliminary meetings were held, the first in Canberra in September 1998 (MD, DM, PR, FS), the second in Florence in January 1999 (DM, PR, FS, PS). Applications for funding were made, and work began.

A third meeting - an extended workshop - was held in Sydney for a week in December 1999 (MD, DM, PR, PS). Regrettably, this workshop revealed that there were insurmountable differences in working methods and managerial practice between the two groups (the scholars based in Australia on the one hand, and those based in Europe on the other). Convinced that a collaboration a distanza of the kind proposed was therefore unworkable, I withdrew from the project. But both Robinson and Sanguineti urged me to reconsider, since by now we had substantial funding from the Arts and Humanities Research Board, and the outcome of the project (the validation or disproving of Sanguineti's stemmatic hypothesis about the textual tradition of the Commedia) would be of great interest to all dantisti.

At the Sydney workshop what had emerged clearly were our differing and irreconcilable views on how the transcriptions should be done. We in the UK
therefore decided to continue with our own version of the project independently of the antipodean group, utilising our own methodology for the transcriptions, and relying entirely on our own resources. In effect, more than eighteen months into the project, we began again from scratch. A year after that decision was taken the Sanguineti edition appeared (2001), and at that point Sanguineti's active role in the project came to an end.

Now, exactly ten years later, we have finally brought the electronic Commedia project to completion. Though the project could not have started without the Sanguineti edition or the original Dwyer-Modesto suggestion, this DVD and web site as they are now published, are entirely the work of Peter Robinson and myself (aided of course by a support team whose indispensable contribution is acknowledged below). I am entirely responsible for the editorial side of the enterprise: both for the introduction, which describes the manuscripts and our transcription practice, explains the rationale for our procedures, and lays out the conclusions reached about the Sanguineti stemmatic hypothesis; and for all the practical editorial decisions which underlie and shape the presentation of the material on the DVD and web site. Peter Robinson is responsible for the information technology side of the project: for the creation of the DVD and web site, and for the devising and implementing of the many original features which make it at once so user-friendly for beginners to the discipline of manuscript studies, and so useful for experts wrestling with the textual problems presented by Dante's poem.

What has the electronic Commedia project achieved? At the simplest level the value of this DVD and web site lies in the accuracy and completeness of the information it provides about the text of the poem as it appears in seven key witnesses, all of them venerable exemplars long accorded iconic status by scholars. The 'Sanguineti seven' manuscripts are, to use the sigils assigned them by Giorgio Petrocchi and universally adopted by scholars, Ash, Ham, LauSC, Mart, Rb, Triv and Urb (detailed information about each manuscript is available
on this DVD and web site under Manuscript Descriptions). Our complete transcriptions of every word of the poetic text in each of these manuscripts make good the incompleteness and occasional inaccuracy of the previous scholarly record. Petrocchi's apparatus, which registers variants from a much larger group of manuscripts, is in general remarkable for its accuracy; nonetheless it occasionally falls short. Petrocchi was unable, for example, to examine the Berlin Hamilton codex directly. He worked from a microfilm and a partial collation carried out by Giuseppe Vandelli. As a consequence Petrocchi misreports the Ham reading a score or so of times. His occasional misreadings tend to perpetuate themselves, as when Paolo Trovato cites the Ash reading at Par. xv 63 from Petrocchi's apparatus, where it is reported inaccurately (see the transcription for Ash ad loc. on the DVD/web site). These are tiny things in themselves, and no single one is in itself very important; but from now on, for these seven manuscripts, there exists a complete and accurate record of the entire text.

Furthermore - a crucial point - if anything has been inadvertently omitted or misreported in our transcriptions, or even if they just strike the reader as unlikely or puzzling, that reader can check immediately not by recourse to other secondary sources, but by consulting the manuscript in question directly. The superb quality of the digital images of the manuscripts is one of the triumphs of the DVD/web site; the availability of these images alongside the transcriptions of them is in itself a huge step forward in Dante studies: together they constitute a uniquely valuable resource for scholars.

It is worth emphasising that the DVD and web site present not just the raw data (images and transcriptions), but a highly sophisticated analysis of the data in the form of the Collation feature - the electronic equivalent of a traditional critical apparatus. Readings shared by different manuscripts can be instantly identified and their significance assessed. This material is presented in two forms, both accessible at the click of the mouse, and both quite unlike anything currently
available in other kinds of scholarly edition, printed or electronic. They represent a very significant advance in the use of computing technology for textual purposes.

The second major contribution made by the electronic Commedia project to Dante scholarship is its testing of Sanguineti's hypothesis about manuscript relationships. That hypothesis, as is well known, called into question the stemma which was the basis for Petrocchi's editorial practice in the edizione nazionale of Dante's poem, La Commedia secondo l'antica vulgata. Without anticipating our conclusions - the reader will have to turn to the Introduction for a full and balanced account - we would like to put on record our indebtedness to the Sanguineti edition, and to the editorial effort that went into its creation, for the stimulus it gave to us and to many other scholars to think again about the text of the poem.

We are equally indebted to Paolo Trovato for the conference he organised at Ferrara in 2003, and the hospitality he offered us there, where we saw direct and telling evidence of the galvanising effect of the Sanguineti edition on a generation of young scholars who presented papers on different aspects of the 'Sanguineti seven' manuscripts. The volume which grew out of that conference, Nuove prospettive sulla tradizione della «Commedia». Una guida filologicolinguistica al poema dantesco, Firenze, Cesati, 2007, contains a rich and varied collection of essays, to which I have frequently turned, as readers of the Introduction will quickly appreciate. In his Introduzione to the volume Trovato notes that scholars reviewing the Sanguineti edition tended to concentrate on the acceptability or otherwise of many of Sanguineti's proposed emendations to the Petrocchi text, 'sempre eludendo la questione principale, cioè la correttezza del nuovo stemma' (p. 12). The correctness of the stemma, or its incorrectness, is precisely the issue we addressed in this project. Trovato's own contributions to the volume - lively, questioning, engaged - go beyond our strictly limited goal (is the Sanguineti hypothesis correct?) to a more extensive and ambitious
examination of the textual tradition of the poem, and the formulation of his own stemmatic hypothesis, which differs in important respects from Sanguineti's. An assessment of its validity lies beyond the scope of our project.

As an integral part of our methodology for examining the Sanguineti hypothesis, we used programmes designed for use in evolutionary biology, where the process by which living organisms are reproduced in successive generations (descent with variation) provides an exact homology with manuscript transmission. This too is a significant contribution to the use of computing techniques by textual scholars. A section of the Introduction explains these procedures in detail, and interested readers are urged to consult it. We can just note here that the procedures adopted by evolutionary biologists are based on inductive reasoning: instead of starting from principles or preconceptions and looking at the evidence in the light of those principles or preconceptions, and making the evidence fit as best one can, they start from the evidence - all of it, with nothing excluded - and let the evidence shape the hypothesis: a classic instance of a posteriori (inductive) not a priori (deductive) reasoning.

A final practical point: the DVD and web site make it easy to compare and contrast the Petrocchi and Sanguineti editions of the text of the Commedia. Some reviewers noted that Sanguineti had failed to provide a list of places where his text diverges from the Petrocchi text, and that it would have been useful to have such a list. The VBase feature on the DVD/web site - another of Peter Robinson's inventions - makes it possible to generate a list of these differences merely by submitting a search request to the database - a hugely time-saving operation compared with drawing up such a list by going painstakingly through the two editions side by side on a desk. Once again computer technology performs in an instant a task which traditional methods would take many months to complete.

In conclusion I would like to emphasise that the ebook presented on the DVD and web site is not for specialists only, in spite of the highly technical nature of
some of the information it contains. The beauty of the manuscript images is in itself a delight. They offer the possibility of reading the poem as a reader would have experienced it not so very many years after the poet's death. This in itself is a moving experience, though paradoxically it is all happening on a computer screen, and not on parchment. The DVD and web site were designed to be and I am confident it will be - of interest to anyone who loves Dante's poetry.

Prue Shaw
$24^{\text {th }}$ February 2010

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I take this opportunity to acknowledge the generous co-operation of the directors of the various libraries where I worked - the Biblioteca Medicea Laurenziana, the Biblioteca Riccardiana, the Biblioteca Nazionale Braidense, the Biblioteca Trivulziana, the Staatsbibliothek zu Berlin Preußischer Kulturbesitz, and the Biblioteca Apostolica Vaticana - first for allowing access to precious manuscripts, so that my final checking of transcriptions could be carried out against the originals, and then for providing the digitised images of the manuscripts and allowing their use for publication in electronic form. I am also
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## Team Members

| Transcription | 2002-10: Prue Shaw, Jennifer Marshall |
| :--- | :--- |
| 2002-3: Barbara Bordalejo, Orietta da Rold, Debora |  |
| Marletta |  |
| 2008-10: Cosetta Veronese |  | Collation $\quad$| 2003-2010: Prue Shaw, Peter Robinson, Jennifer |
| :--- |
|  |
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|  |
|  |
|  |
|  |
|  |
| Bellagio 2003: Edvige Agostinelli, Barbara |
| Francesca Galligan, Jennifer Marshall, Angelo |
| Eugenio Mecca with Prue Shaw and Peter |
| Robinson |
| 2008-10: Cosetta Veronese |

Editorial materials Prue Shaw, with contributions from Barbara Bordalejo and Peter Robinson

Metrical Analysis David Robey
$\begin{array}{ll}\text { Anastasia } & \text { 2003-10: Peter Robinson } \\ \text { Programming } & \text { 2003-2007: Andrew West }\end{array}$
2007: Zeth Green

## Table of Abbreviations

Journals, dictionaries and encyclopedias

| ASI | Archivio storico italiano |
| :--- | :--- |
| BSDI | Bullettino della Società Dantesca Italiana |
| DBI | Dizionario biografico degli italiani, Roma, Istituto <br> dell'Enciclopedia italiana, 1960- |
| DDJ | Deutsches Dante-Jahrbuch |
| ED | Enciclopedia Dantesca, Roma, Istituto <br> dell'Enciclopedia italiana, 6 vols, 1970-1978 |
| FR | Filologia romanza |
| GD | Giornale Dantesco |
| GSLI | Giornale Storico della Letteratura Italiana |
| PT | La parola del testo |
| RLI | Rivista di Letteratura Italiana |
| RSD | Rivista di studi danteschi |
| SC | Strumenti critici |
| SD | Studi danteschi |
| SFI | Studi di filologia italiana |

Conference acts, exhibition catalogues, miscellanies, ms facsimiles

Mostra codici romanzi

Atti 1962

Atti 1965

Un itinerario dantesco

## Painting and Illumination

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«Per correr miglior acque ...» «Per correr miglior acque ...». Bilanci e prospettive degli studi danteschi alle soglie del nuovo millennio. Atti del Convegno di Verona-Ravenna, 25-29 ottobre 1999, Roma, Salerno Editrice, 2001.
$\left.\begin{array}{ll}\text { Miniature a Brera } & \text { Miniature a Brera 1100-1422. Manoscritti } \\ & \text { dalla Biblioteca Nazionale Braidense e da } \\ & \text { Collezioni private, a cura di Miklós Bosckovits } \\ & \text { con Giovanni Valagussa e Milvia Bollati, } \\ & \text { Milano, Federico Motta Editore, 1997, 158- } \\ & 67 . \\ & \text { «Mia donna venne a me di Val di Pado». Atti } \\ \text { «Mia donna ...» } & \text { del Simposio su Dante (Fidenza, 31 maggio } \\ & \text { 2002), a cura di Mario Pietralunga, Firenze, } \\ & \text { Cesati, 2003. } \\ \text { «Acciò che 'l nostro dire ...» } & \text { «Acciò che 'l nostro dire sia ben cbiaro». Scritti } \\ & \text { per Nicoletta Maraschio, a cura di Marco Biffi } \\ \text { et al., Firenze, Accademia della Crusca, 2018. }\end{array}\right\}$

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| Dante visualizzato | Dante visualizzato. Carte ridenti I: XIV secolo, a cura di Rossend Arqués Corominas e Marcello Ciccuto, Firenze, Cesati, 2017. |
| Da riva a riva | Da riva a riva. Studi di lingua e letteratura italiana per Ornella Castellani Pollidori, a cura di Paola Manni e Nicoletta Maraschio, Firenze, Cesati, 2011. |
| Dentro l'officina | Dentro l'officina di Giovanni Boccaccio. Studi sugli autografi in volgare e su Boccaccio dantista, a cura di Sandro Bertelli e Davide Cappi, presentazione di Stefano Zamponi, Città del Vaticano, Biblioteca Apostolica Vaticana, 2014. |
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## I. Introduction

## Overview

The first problem facing any editor of Dante's Commedia is the richness of the manuscript record - around 600 copies if we count only complete texts of the poem, more than 800 if we include partial and fragmentary copies. ${ }^{1}$ Confronted with this mass of material, Giorgio Petrocchi, who prepared the Edizione Nazionale of the poem to mark the seventh centenary of Dante's birth in 1965, took a bold decision: to base his edition on early manuscripts only. ${ }^{2}$ More precisely, he chose to use only manuscripts he believed to be securely datable before 1355 - just 24 manuscripts in all, in his view, plus three fragmentary copies, making a total of twenty-seven witnesses he collated in their entirety. This editorial strategy was not simply a pragmatic response to the vast size of the surviving tradition; on the contrary - he insisted - it was imposed by the transmission history of the text itself. Petrocchi's edition marked a historic step forward in Dante studies, both for its theoretical take on the complexities of the textual tradition and the text which resulted from his approach: not simply $L a$ Commedia (the poem as Dante wrote it), but La Commedia secondo l'antica

[^0]vulgata (the poem as it circulated in the three and a half decades after the poet's death). ${ }^{3}$

1355 was no arbitrary cut-off date. Petrocchi's decision had a robust theoretical underpinning, based as it was on the conviction that after 1355 textual transmission became so contaminated that beyond that point no editor could rationalise or give a coherent account of manuscript relations. The cause of that contamination was easily pinpointed in the enthusiastic scribal and editorial activity of one of Dante's greatest admirers, Giovanni Boccaccio. Boccaccio copied the whole Commedia three times in the years between 1357 and 1373. These Boccaccio copies, in the order in which they were produced, are now to be found in libraries in Toledo, Florence and the Vatican City, and are conventionally referred to with the sigils To, Ri and Chig. ${ }^{4}$

All three Boccaccio copies demonstrably have as their base copy another Vatican manuscript (Vat), which Boccaccio had ordered from a Florentine scriptorium for his friend Petrarch. ${ }^{5}$ But far from copying this illustrious exemplar as faithfully as he could, Boccaccio consulted other copies, and in the course of transcribing incorporated into his own copies plausible or attractive variants

[^1]from these other manuscripts. Nor was this a once-and-for-all procedure: he continued actively to seek out and introduce new readings in the later copies; as a result his second and third copies differ both from the first copy and from one another. ${ }^{6}$

Contamination, as it is called - the process by which a strict vertical line of descent is subverted when variants are introduced laterally from manuscripts other than the principal exemplar - is not something which started with Boccaccio. The earliest securely-dated surviving manuscript of the Commedia, known as the Landiano (La), ${ }^{7}$ which dates from 1336, is already demonstrably contaminated over its entire length, with many readings scraped away and others substituted for them (some of the original readings are recoverable with the help of an ultra-violet lamp). ${ }^{8}$ An even earlier manuscript of 1330-31, which does not itself survive but of which we have detailed knowledge, was likewise already contaminated. In 1548 the Florentine humanist Luca Martini made a scrupulous collation of this manuscript, using as his base text a 1515 Aldine printed text. The lost manuscript can be reconstructed from the composite testimony of the printed text on which Martini made his collation, where that text has not been amended, and Martini's hand-written substitute readings which replace a significant part of it. The copyist of this lost manuscript, in a prefatory notice which Martini faithfully transcribed, shows that he was clearly aware that there are corrupt readings in circulation and tells how he chose what seemed to him to be the best readings among those available: ' ... liber lapsus est quam

[^2]plurimum in verborum alteratione et mendacitate. Ego autem ex diversis aliis respuendo que falsa, et colligendo que vera vel sensui videbantur concinna ... '. ${ }^{\prime}$

Indeed contamination predates even this very early witness; the evidence of the earliest commentaries on the poem - those of Jacopo Alighieri (1322), Graziolo Bambaglioli (1324), and Jacopo della Lana (1328) - and the fragments of text they cite shows that the process dates from the earliest copies made of the poem in the years immediately following its author's death. ${ }^{10}$ But in Petrocchi's view the scale of contamination in the Boccaccio copies is something new, and for an editor of the Commedia attempting to make sense of the surviving manuscript tradition, non-negotiable.

Petrocchi provided a stemma of manuscript relations, reproduced below for ease of reference, which shows the inter-relationships among the twenty-four manuscripts he used (a twenty-fifth witness, Sa , consists of fragments on two folios only) ${ }^{11}$ and sets them in the time-frame within which they were copied, indicated by the dates in the left-hand margin. This chronological grid usefully reminds us that the point of origin of Petrocchi's stemma is not an archetype as the term is normally understood, conventionally designated $\omega$ and assumed to be very close to the author's original, but an entity he calls O dated 1321: O

[^3]represents the point from which the antica vulgata that circulated in the three decades following Dante's death derived. Petrocchi's awareness of the problems in postulating an archetype for a text almost certainly released in sections (not just single cantiche, but possibly in groups of canti, as recent scholarship has persuasively argued ${ }^{12}$ ) was an important element in shaping his understanding of the textual tradition of the poem.

[^4]

Petrocchi's edition remained unchallenged for more than 30 years, during which time it was the critical text of choice always cited by scholars when they quoted from the poem, although isolated individual readings were occasionally called into question and debated by dantisti in commentaries and scholarly articles.

The 1995 edition of the Commedia by Antonio Lanza adopted an entirely different editorial strategy. ${ }^{13}$ Lanza argued that since it was impossible to examine and analyse all the manuscript evidence (given the vast numbers of copies involved), the only rational course of action left to an editor was to choose the best manuscript available and to prepare an edition in conformity with the practice recommended by Joseph Bédier. In an influential contribution to the theoretical debate, Bédier had questioned whether it was ever possible with a complex manuscript tradition to devise a stemma or genealogical tree which

[^5]accurately reflected the transmission history of the text, given both the complexities of the transmission process itself and the biases, perhaps unconscious, which any editor will bring to the task. On Bédier's view, the most useful thing an editor could do was to give an accurate and scholarly edition of the 'best' surviving witness, so that the reader would see a version of the text which in that limited sense at least was authentic. ${ }^{14}$

Lanza echoed misgivings which had been expressed by other scholars on more concrete and practical issues: specifically, about the dating of certain manuscripts. A number of manuscripts Petrocchi believed to have been copied post-1355 would appear to date from earlier; ${ }^{15}$ perhaps more significantly, it has been argued persuasively that a key witness in the Petrocchi stemma, the Cortona manuscript (Co), was copied well after 1355. ${ }^{16}$

The 'best manuscript' chosen by Lanza as the basis for his edition was the famous Trivulziano $1080^{17}$ copied in 1337 by Francesco di Ser Nardo, a professional copyist based in Florence ('il copista più accurato in assoluto', in Lanza's view) who also made another, later copy of the poem. Where Triv was obviously corrupt (very seldom, in Lanza's view), it was emended by reference to other

[^6]early Florentine manuscripts which were utilised by the editor in a strict hierarchy of affidabilità. ${ }^{18}$

The text which Lanza's edition presents is thus 'un testo del poema dantesco esistente, reale, non contaminato né sul piano delle lezioni (salvo pochi, indispensabili interventi), né sul terreno linguistico (ho seguito sempre e comunque fedelissimamente Triv)'. With this new text 'possiamo disporre di un Dante non "italianizzato" (o, peggio, "bembizzato"), ma di un Dante municipale e molto più medievale: insomma del vero Dante "fiorentino"". ${ }^{19}$ The text Lanza presents is, he claims, 'prossimo, molto prossimo al testo originale di Dante'.

This same claim is made in a new edition of the Commedia which appeared in 2001, edited by Federico Sanguineti. ${ }^{20}$ Sanguineti however questioned Petrocchi's methodology in a far more radical way than Lanza. Rather than arguing that it was impossible to prepare an edition in the full Lachmannian sense of the word, and that the appropriate strategy was therefore to offer a 'best manuscript' edition, Sanguineti claimed that by applying Lachmann's methodology rigorously it could be shown that Petrocchi had simply got it wrong. The number and choice of manuscripts on which a critical edition should be based, the exact relationships among those manuscripts, and the weighting of different readings in the light of those relationships, were all called into question. This edition explicitly sought to displace the Petrocchi edition as the standard critical text, with a detailed and intricate argument about the nature of the poem's transmission history and the character of the text which could be reconstructed from a proper understanding of it. This text, far from being merely 'secondo l'antica vulgata', was - like Lanza's, but for very different reasons

[^7]- declared to be a critical edition very close to Dante's original. We must perforce look at Sanguineti's argument in close detail if we are to reach a balanced assessment of its validity.

Sanguineti took as his starting-point a scholarly contribution of potentially great significance - but, in the event, disappointingly small impact - which had been made more than a hundred years earlier. In 1891 Michele Barbi, at the invitation of three senior dantisti linked with the recently established Società Dantesca Italiana, had produced a list of lines in the Commedia which he believed would prove crucial for establishing manuscript relationships: the so-called 400 loci (in actual fact, 396 lines of text). ${ }^{21}$ At this date, it should be remembered, no attempt had been made to devise a genealogical tree representing manuscript relations for the poem: indeed, one of the greatest Dante scholars of the nineteenth century, Edward Moore, had reluctantly concluded not many years before that such a thing was not possible. ${ }^{22}$ The loci were not chosen arbitrarily, but, as Barbi himself emphasised, were the result of much practical experience working with the rich manuscript resources of the Florentine libraries and pondering on the significance of certain variant readings. ${ }^{23}$

[^8]When the list was published, an open invitation was issued to other interested scholars to check these lines in any manuscripts of the poem to which they had access, and to send a record of the readings at these various points to the Societa Dantesca Italiana in Florence. Special forms were printed to facilitate the task. The hope was to accumulate a mass of material drawn from a large number of manuscripts scattered over a vast geographical area - far beyond the possibilities of any individual scholar to examine and record. This would constitute an invaluable data-bank of textual material and serve as a basis for a detailed analysis of manuscript relations, and, in the fullness of time, an authoritative edition of Dante's poem to be prepared under the aegis of the Società Dantesca.

The response to Barbi's invitation was disappointing. A handful of scholars examined a handful of manuscripts and reported their findings. ${ }^{24}$ Thirty years later, in the early 1920s, when Giuseppe Vandelli and Mario Casella independently produced new scholarly editions of the poem, they had largely to rely on their own labours. Vandelli's edition, which was published to mark the 1921 centenary and was to be influential for more than 40 years, was the fruit of many years of investigation into individual manuscript variants, but Vandelli did not produce a theory of manuscript relationships; like Witte and Moore before him, he thought it was not possible to do so. ${ }^{25}$ Rather, he attempted for each

[^9]individual reading to explain how the variants were related to and derived from an original reading which might account for them. ${ }^{26}$

Casella's edition was less influential than Vandelli's, but methodologically his contribution was fundamental, in that he articulated a first tentative theory of manuscript relationships. ${ }^{27}$ His grouping of manuscripts into two families, which he called $\alpha$ and $\beta$, paved the way for all future studies of the transmission history of the poem, and, as we shall see, is still a powerful presence in Sanguineti's account of the textual tradition. ${ }^{28}$

Casella's two groups and the manuscripts which comprise them are represented in two partial stemmas: ${ }^{29}$

[^10]

The groups differ notably in size, $\beta$ very large, $\alpha$ very small: ' $\beta$ strabocchevolmente numerosa comprende la quasi totalità dei codici danteschi che ci rimangono'; ${ }^{30} \alpha$ numbers just three manuscripts, Triv, Mart and the socalled Laurenziano di Santa Croce (LauSC), an important manuscript in the history of textual studies of the poem, to which we will return shortly (in Casella's stemma LauSC is referred to as cod. Villani after the name of its scribe, Filippo Villani). ${ }^{31}$ It should be noted that the expression 'la cosidetta "famiglia beta", used passim in Sanguineti's discussion, and occasionally in the pages which follow when reporting Sanguineti's argument, refers to this very large beta family of Casella's; it is not to be confused with Petrocchi's very small beta family. ${ }^{32}$ Casella's beta family becomes part of Petrocchi's large alpha family, as

[^11]is apparent in the stemmas reproduced above, although in Petrocchi's stemma the position of the Landiano codex (the oldest securely datable surviving manuscript La) is significantly different, inasmuch as it is the only manuscript he believed to have characteristics of both families, and is situated between them.

Casella did not show how his two families might be linked at a higher level, but he did observe that they had errors in common and that their common ancestor, which he identified with the archetype, had certainly been copied by a northern scribe, since they shared a northern linguistic colouring, reflected for example in the form rozza for roggia at Inf. xix 33 ('che manifestamente è grafia settentrionale per roggia') and in the verb forms vidi for vedi (showing typical northern metaphonesis) at Inf. v 64, 65 and $67 .{ }^{33}$ Gianfranco Folena rightly observes that Casella's archetype is 'postulato ma non dimostrato'. ${ }^{34}$

Sanguineti's idea was to do precisely what Barbi had urged scholars who might have access to libraries to do a hundred years earlier: to take the 400 loci and examine them in all surviving manuscripts, and to see what results such an analysis might yield. This he did by utilising the rich resources of the Società Dantesca's excellent microfilm library, set up in the intervening years with the aim of holding microfilm copies of all manuscripts which contain works by Dante. His exhaustive examination of the 400 loci in all known manuscripts, and

[^12]his subsequent evaluation of the results, underpins the first of the three major areas in which he modifies Petrocchi's conclusions. We may summarise his findings under three headings: the tradition, the stemma, and the text.
i. The tradition

Sanguineti's conclusion - radically different from Petrocchi's - was that just seven manuscripts were necessary and sufficient for a critical edition of the Commedia. Of these manuscripts ('the Sanguineti seven'), six predate 1355 and had been used by Petrocchi. In addition to Mart and Triv already mentioned, they are:

| Ash | Florence, Biblioteca Medicea Laurenziana, ms. |
| :--- | :--- |
|  | Ashburnham 828. |
| Ham | Berlin, Staatsbibliothek Preußischer Kulturbesitz, ms. <br>  <br> Hb$\quad$Flomilton 203. <br> Flonce, Biblioteca Riccardiana, ms. Riccardiano 1005 <br> and Milan, Biblioteca Nazionale Braidense, ms. AG XII 2. |
| Urb | Vatican City, Biblioteca Apostolica Vaticana, ms. Urbinate <br> latino 366. |

The seventh was LauSC, a manuscript which - as we have seen - was highly valued by all editors before Petrocchi in spite of its late dating, but which Petrocchi had discarded precisely because of that dating. ${ }^{35}$ Of these seven manuscripts three are Florentine (Mart, Triv, LauSC), two come from western Tuscany (Ash and Ham), and two from northern Italy (Rb and Urb).

Sanguineti claimed that an edition based on these seven manuscripts, far from being in some sense provisional (as Petrocchi's 'secondo l'antica vulgata' formulation explicitly acknowledged), would instead be very close to the

[^13]authorial original. Petrocchi's title reflected his scrupulous insistence that no edition could be called genuinely critical or definitive which had not examined all the manuscript evidence ('Ai fini di un'edizione critica, e perché tale veramente sia, si deve tuttora tener fede alla legge di partenza e di fondo d'ogni ricerca testuale: l'interrogazione integrale della tradizione.'; Proposte 343). But this must be counterbalanced by his conviction, expressed more than once, that an examination of the post-1355 manuscripts would not throw up any new good readings or lezioni indifferenti which were not already present in the antica vulgata manuscripts, and that therefore the antica vulgata text would prove in effect to be the critical edition ('l'edizione-base assumerà ipso facto il grado di testo definitivo', Proposte 345; and again 'abbiamo posto in rilievo la diversità metodologica tra la prima fase (l'edizione-base) e la seconda (il testo definitivo), anche se il risultato probabilmente farà coincidere, nella loro struttura testuale e linguistica, questo con quella', Proposte 335 n. 1).

## ii. The stemma

Having reduced the number of manuscripts necessary and sufficient for an edition of the poem to seven, Sanguineti then provided a stemma to show their interrelationships. In broad outline the stemma was close to Petrocchi (with the addition of LauSC to the $\alpha$ family, reflecting an affiliation already recognised by Casella). But there was a crucial modification. Where Petrocchi had linked Rb with Urb as representatives of the northern tradition, constituting his $\beta$ family (along with $\mathrm{Mad}^{36}$ ), Sanguineti maintained that Rb was more closely connected to the $\alpha$ manuscripts, and that Urb stood alone as representative of the $\beta$ tradition.

[^14]

Sanguineti's stemma has the visual appeal of an elegant and minimalist diagram. Nothing in it hints at the two evocative images Petrocchi used to describe the effects of contamination in the textual tradition of the Commedia: the tangled web and the seeping oil-stain. ${ }^{37}$ Petrocchi's own stemma had attempted, however imperfectly, to represent the complexity alluded to in these images, both in the broken lines linking certain manuscripts and in the position of La midway between $\alpha$ and $\beta$. To judge at least by this visual representation, Sanguineti believes the manuscript relationships to be clear-cut and unambiguous.
iii. The text

Sanguineti's final claim is that the isolated $\beta$ manuscript Urb - the sole representative of $\beta$, in his view - although it dates from 1352, is extremely close to Dante's original, and its readings, unless they are manifestly erroneous, are always to be preferred over those of the remaining manuscripts. In passing we

[^15]can note that even if Sanguineti is right about the first two parts of his argument (the tradition and the stemma), this favouring of the readings of Urb does not follow as a necessary consequence, but will need to be demonstrated with arguments. In theoretical terms, clearly, the two branches of a two-branched tree carry equal weight: $50 \%$ each.

The Sanguineti edition had a mixed critical reception. In the immediate postpublication period it was hailed enthusiastically in the national press as an event of great importance, with reviewers seemingly accepting at face value Sanguineti's claims that he had fully implemented Lachmann's methodology for the first time on the Commedia; ${ }^{38}$ but the response in some learned journals slower to appear in print and more deeply engaged with the detailed articulation of the textual argument - was more muted, and sometimes very critical. Some scholars questioned the reasoning which lay behind the drastic winnowing of the extant manuscripts to a mere seven, and the validity of adopting a methodology based exclusively on Barbi's loci. Others expressed reservations about aspects of the stemma, and the use made of it in constituting the text. The choice of many of the Urb readings incorporated into the text, though it certainly reflected a rigorously consistent editorial approach, left many scholars unconvinced. Not least among the concerns expressed was that many lines in the new edition seemed metrically problematic or anomalous. ${ }^{39}$

A second volume which promised to discuss and justify the many surprising Urb choices was eagerly awaited. When this second volume appeared in 2005 it took the form merely of an Appendice bibliografica 1988-2000, which gave an extremely

[^16]useful check-list of all recent contributions to the textual debate, but failed to offer the discussion of and justification for individual readings which even keen supporters of the new edition regarded as indispensable. ${ }^{40}$

## The present project

The present project for a digital edition of the Commedia began some years before the Sanguineti edition appeared in print. A group of scholars with shared interests - in Dante, and in computing technology as it might be applied to the analysis of manuscript traditions - came together in 1998 and devised a project for testing Sanguineti's stemmatic hypothesis using computerised methods. The advantage of the Sanguineti thesis for a project of this kind was precisely the restricted number of manuscripts involved, and the clearly formulated (and methodologically crucial) hypothesis about their inter-relationships. Sanguineti himself was at this stage an enthusiastic member of the team. A number of preliminary meetings took place, in Canberra, Florence, Cambridge and Sydney. Applications for funding were successful in two hemispheres, and work began. ${ }^{41}$

The project had two clear aims: to test the Sanguineti hypothesis about manuscript relations among the 'Sanguineti seven', using sophisticated computer programmes devised by evolutionary biologists for the making of phylogenetic trees; and to create a digital edition on DVD-Rom with all the available evidence presented in a form which would enable other scholars to examine that evidence with their own eyes and independently test the

[^17]conclusions, whatever they might be, which the analysis produced. The aims were interconnected and yet distinct; the value of the second goal, the digital edition, would be independent of whether or not Sanguineti's hypothesis was validated by the computer analysis.

The digital edition (it was thought) would put the reader in direct contact with some of the earliest surviving testimony of the Commedia's transmission, in the form of a complete image record using high-quality digitised images for all seven manuscripts, accompanied by transcriptions which could be viewed on screen alongside each image. There would also be extensive editorial material, in the form of notes to the transcriptions, manuscript descriptions, a collation of all variant readings over the whole length of the poem, and an analysis of the computerised results. Some of the earliest and most beautiful manuscripts of the poem - manuscripts so precious that it can sometimes be difficult even for accredited scholars to gain access to them in libraries - would be made accessible to any interested reader in a uniquely direct way. But before we turn our attention to the DVD-Rom, its methodology and its conclusions, we must take a closer look at Sanguineti's argument and the detail of its articulation. No scholar has to date, I think, provided a step by step account of that argument as it unfolds. The pages which follow seek to do just that.

## Sanguineti's argument: the tradition

Sanguineti's argument for eliminating almost 800 manuscripts from editorial consideration (and thus reducing to just seven those of real textual significance) uses the concept of manuscripti descripti. A descriptus is a manuscript which can be shown to be a copy of another manuscript, of which it will reproduce the characteristic readings and errors with additional errors of its own. A descriptus can therefore be discarded by the editor: it will provide no information not already available in its exemplar. The notion is normally applied to two extant individual manuscripts: one is eliminated because it can be shown to be a copy
of the other. To prove such a relationship can involve a detailed, even exhaustive, examination of the evidence over the whole length of the text. ${ }^{42}$

This is not how Sanguineti conducts his argument, however. Indeed it hardly could be, given that he eliminates such a vast number of witnesses. His methodology is much more unorthodox, and, it must be said at the outset, much more problematic. No attempt is made to compare any given manuscript with its putative exemplar (the normal procedure in a demonstration of this kind). On the contrary, using a very small number of readings, and a very large number of manuscripts, Sanguineti argues that all manuscripts which have these few readings (or some of them) must derive from a common ancestor and thus constitute a family. This common ancestor is a hypothetical entity ('ricostruibile'), not an actual extant copy of the poem. Since it has not survived, it cannot itself be examined or analysed. ${ }^{43}$

The readings Sanguineti uses to argue the case come from Barbi's 400 loci. If I have understood his argument correctly - a difficult thing to be sure of, since the case is argued with extreme concision, as though it had the force of a mathematical proof, in this respect contrasting sharply with the discursive, explanatory style of Casella, Vandelli and Petrocchi, models of expository clarity

[^18]- it goes like this. All manuscripts which at Purg. ii 93 omit the words diss'io can be assumed to have a common ancestor: the list includes 13 of the antica vulgata mss. plus well over 300 recentiores (listed in Tavola 1). But this error is already present and corrected in the Landiano manuscript (La), the oldest surviving member of the family (1336), where diss'io appears as a correction over the erasure of an original reading where the words were missing. So the family is contaminated, and some members of it will have the correct reading at Purg. ii 93 with diss'io. (Sanguineti does not spell this out, but this seems to be the reasoning.) For these manuscripts other readings must be used to identify their affiliations. ${ }^{44}$

A second group of manuscripts can be eliminated on the basis of a small group of readings they share in whole or in part: ebbe for volle at Purg. xxiv 125: per che no i volle Gedeon compagni (12 of the antica vulgata mss.); segno for lume at Par. v 95: come nel lume di quel ciel si mise ( 11 of the antica vulgata mss.); and spiro for giro at Par. xxiii 103: Io sono amore angelico, che giro (7 of the antica vulgata mss.); to these may be added almost 100 recentiores (listed in Tavola 2). We can just note however à propos of Par. xxiii 103 (spiro for giro), that the scribe has anticipated the word spira in the following line, and that Petrocchi uses precisely this example to highlight the inadvisability of using readings like this as a basis for establishing manuscript relations: 'la sindrome di errori tipici d'eco letterale mostra l'indiscriminata possibilità dei copisti a cadere sotto una generica suggestione di memoria. Occorrerà ... guardarsi bene dal fondare elementi di giudizio e di prova, nella classificazione, su così fragili sostegni.' (Antica Tradizione 66).

On the basis of these four readings alone, all these manuscripts can be eliminated, Sanguineti argues, leaving 'poche decine di codici'. These four

[^19]readings are described as 'caratterizzanti la cosidetta "tradizione beta", i.e.
 Vaticana (all four are present in Vat), the gruppo del Cento, and 'affini e derivati'. Note that Barbi's 400 loci have shrunk to just 4 for the purposes of this radical elimination of more than 400 witnesses.

The remaining manuscripts are now evaluated by Sanguineti in the light of the 400 loci using other readings. ${ }^{45}$ The rationale here seems to be that these readings appear in some mss. of 'beta', so finding them in other mss. shows a family resemblance. A first group consists of 44 manuscripts which have only Inferno (and therefore have none of the four loci so far used, all located in Purgatorio and Paradiso). They are found to share other characteristic errors and variants with the Officina Vaticana and the gruppo del Cento, and can likewise be eliminated (they are listed in Tavola 3).

A final group of 87 manuscripts follows. These are complete copies of the poem but 'per lacuna o contaminazione' they do not have the four errors or readings shared by the manuscripts listed in the first two tables; nonetheless 'recano l'impronta del gruppo del Cento o dell'Officina Vaticana' because of other characteristic readings (the manuscripts are listed in Tavola 4). To spell out what Sanguineti glosses over in a phrase, this substantial group of 87 manuscripts either omit the four readings in question ('per lacuna') or carry the correct readings ('per ... contaminazione'). This last assertion is particularly problematic: contamination with what? with manuscripts which have the correct reading, obviously. By dint of this last operation, Sanguineti has eliminated all but eight manuscripts. But it has to be said that even with repeated re-reading and mulling

[^20]over of his line of argument, it is difficult to banish a lingering unease that the case has not been satisfactorily demonstrated. ${ }^{46}$

It is worth pointing out how very close to Casella this account of mss. relationships is. A family which is 'strabocchevolmente numerosa' and which 'comprende la quasi totalità dei codici danteschi che ci rimangono ${ }^{\prime 47}$ is set against a very small number of mss. which do not belong to it (3 for Casella, 7 for Sanguineti). The difference, of course, is that Casella did not propose to eliminate the large family from editorial consideration. Indeed his championing of LauSC was based on his conviction that it harmoniously combined readings from both families, while avoiding the pitfalls associated with either. ${ }^{48}$

Sanguineti declares that only eight manuscripts remain which do not have the errors and characteristic readings of 'la cosiddetta "tradizione $\beta$ "': only these need be considered by an editor of the Commedia. ${ }^{49}$ He now moves on to the second stage of this first part of his argument. The first stage has supposedly established the existence of this huge family; the second stage shows why the testimony of these manuscripts can be ignored. He will then go on to draw up the stemma on the basis of the remaining manuscripts. We may note in passing the disproportion between the space devoted to each section of the argument: 19

[^21]pages to the first stage; just one page to this second stage; a little over two pages to the stemma. The extreme concision with which the argument is developed in these two final and crucial stages is not helpful.

To defend his elimination of almost 600 manuscripts, Sanguineti now sets out to show that this 'supposta "tradizione $\beta$ " discende contaminando da differenti rami'. To do this, he lists errors shared by some of the 600 with some of the seven remaining manuscripts which constitute his stemma. He shows that some manuscripts share one error with Rb ; others share 10 errors with $b$ (the antigrafo of Ash and Ham); yet others share 8 errors with $y$, the antigrafo of LauSC. What is striking here is the fragility of the evidence offered. Just one reading is cited to establish the supposed link with Rb - and this reading (ale for aere at Purg. ii 35) must be considered polygenetic, since ale echoes the word ali from two lines earlier, and, as already noted, this kind of memory-slip is a common occurrence with scribes and proves nothing about manuscript relationships.

Sanguineti offers longer lists, but from a restricted area of the text, to establish links with $b$ and $y$. The ten readings which supposedly establish the link with $b$ all come from twenty cantos of Purgatorio. The eight errors which establish the link with $y$ all come from ten cantos of the Paradiso, and six of those readings come from just three consecutive cantos, xxii-xxiv. There are no readings at all from Inferno. It seems unwise to hazard anything at all on the basis of such limited evidence. The evidence is limited in two quite different ways: the small number of readings offered, and their distribution within narrow areas of the poem instead of across its whole length.

But Sanguineti now asserts: 'Ne consegue che la suddetta "tradizione $\beta$ " - nulla di genuino offrendo che non sia già in $b$ (Ash Ham) $y$ (LauSC) Rb - è inutilizzabile ai fini della restitutio textus.' This seems an extraordinary leap in the argument. The logic is far from clear, and Sanguineti makes no attempt to explain it. Showing that manuscripts within the group share a few errors with $\mathrm{R} b$ and $y$ does not prove that we can discount them altogether. It simply does
not follow as a consequence that there is 'nulla di genuino' to be found in these manuscripts. In reality it is doubtful whether Sanguineti's lists prove anything at all, beyond the fact that the textual tradition of the Commedia is extremely complicated and very contaminated. Reluctantly, we are forced to conclude that sua probatio nulla est: ${ }^{50}$ his 'proof proves nothing. To show there are errors in common in, for example, Paradiso xxii-xxiv might at most suggest the manuscripts in question have a common antigrafo at that point, or that there is significant contamination in that section of the text. A more reasonable conclusion (if more problematic for an editor) might be that scribes may have worked from different exemplars at different points in their transcription, as Petrocchi's account cited above usefully reminds us. ${ }^{51}$ Recent scholarly work on the diffusion of Dante's poem - the process by which it was released to the public, certainly in stages over time, and not as a single entity - supports the idea that different areas of the poem (single cantiche, or even groups of cantos) might have different transmission histories. ${ }^{52}$

On a more general point, it is remarkable that Sanguineti in his account of the textual tradition of the poem nowhere mentions contamination or polygenetic error as fundamental problems facing an editor. Petrocchi's many wise and thoughtful pages on this last subject, the necessary lengthy preamble to his analysis of the textual tradition of the poem, are a model of editorial caution and willingness to foreground the problematic aspects of his editorial activity - in this as in other respects, Petrocchi is a worthy heir to Moore. Equally, Sanguineti never alludes to Petrocchi's careful and repeated warnings about

[^22]contamination from the earliest copies of the poem. Sanguineti uses the term only when it suits him to explain away a difficulty, and writes as if the proof he offers is both rigorous and conclusive. ${ }^{53}$

The weakest point of all in Sanguineti's argument concerns ms. Rb and its affiliations: here a single error - a polygenetic error - is supposed to establish a connection with the 'supposta "famiglia beta". He then goes on, as we shall see shortly, to offer a not much more robust argument to link Rb with alpha, as against Petrocchi's far more detailed demonstration of what he believed to be its primary beta affiliation.

It should be noted that all the material presented in this section of Sanguineti's argument is compatible with Petrocchi's much more fine-tuned and nuanced view of the tradition. The material only appears to serve Sanguineti's purposes because of the innocuous-looking 'ne consegue' - a tiny phrase which implies a logical link which is simply not there.

It is a striking fact that Sanguineti offers no theoretical defence of his editorial strategy. He nowhere explains or justifies his decision to base his modus operandi on Barbi's loci - and this in spite of the fact that Petrocchi had very explicitly warned that any such attempt would be a retrograde step: 'la poca accoglienza che gli studiosi italiani e stranieri resero all'iniziativa della Società Dantesca, fece fallire innanzi tempo l'apprestamento di un così ampio e indubbiamente utile repertorio. Oggi riprendere quella strada ... sarebbe impresa sommamente ingenua.' [my italics] ${ }^{54}$

[^23]In view of this explicit warning by the editor of the Edizione Nazionale, it seems strange that Sanguineti offers no counter-argument, however perfunctory, in defence of the loci as a valid working tool. The closest he comes to doing so is in his half-page Premessa, where, after quoting Petrocchi's statement that the $E N$ aimed to 'costituire il testo più vicino possibile a quello che sarà dell'edizione critica', he continues: 'Per quest'ultima ... non restava che tornare al Canone della Società Dantesca Italiana ...' - precisely the thing that Petrocchi in the very same article had said would be 'sommamente ingenua'. Again everything rides on a tiny phrase ('non restava che') which implies a logical link which just is not there. ${ }^{55}$

To recapitulate the concerns Sanguineti's procedures arouse: to choose just a small handful of readings in a text of 14,233 lines - the 400 loci constitute less than three percent of the text - in the light of advances in our knowledge of the textual tradition of the Commedia in the intervening years since 1891, requires at the very least a more thoroughly worked through and developed account than he offers. As we have noted, Sanguineti does not even acknowledge the fact that one of his four key readings (on the basis of which, as we have seen, more than 400 mss . are eliminated) is a polygenetic error: the substitution of spiro for giro at Par. xxiii 103 is certainly so classifiable, since the word spira occurs in the next line, and the substitution constitutes a classic case of scribal anticipation. A polygenetic error - an error liable to arise independently in unrelated witnesses - can never be a firm basis for establishing a link between manuscripts. We must reluctantly conclude that the argument for eliminating most of the surviving copies of the Commedia is flimsy.

[^24]When Rudy Abardo in his review of the Sanguineti edition described the decision to base the textual argument on the 400 loci as 'un secolare arretramento metodologico', Sanguineti's response was to deny that he had been trying to do anything methodologically innovative ('mai sognato un avanzamento metodologico'). ${ }^{56}$ But this reply merely side-steps the issue. He is, it is true, using an old methodology, the loci; but by implementing this methodology fully for the first time (by looking at the loci in all surviving manuscripts) he claims to have reached a new understanding of the tradition - an understanding which cuts right across Petrocchi's conclusions and radically undermines them. In this sense his methodology is certainly claiming to be an 'advance' on Petrocchi. It could hardly fail to be otherwise, given its practical outcome (the new text) and the claims made for that text. Sanguineti appears to be answering Abardo's criticism while in fact not answering it at all. We come back to the absence of any attempt to explain or justify the use of the 400 loci in spite of Petrocchi's explicit warning.

Sanguineti concludes this section of the argument by listing the remaining manuscripts, the ones an editor will need to take into consideration when preparing an edition. As well as the seven manuscripts already mentioned, to which he now gives the initials A (Ash), H (Ham), L (LauSC), M (Mart), T (Triv), $\mathrm{R}(\mathrm{Rb})$, and $\mathrm{U}(\mathrm{Urb})$, there is an eighth, ms. Florio, a beta ms. like Urb; but, as noted earlier, ms. Florio is omitted when the stemma is drawn up on the grounds that it is contaminated with alpha. ${ }^{57}$

[^25]
## Sanguineti's argument: the stemma

The second plank of Sanguineti's argument is his stemma. The reasoning in support of it is developed with noteworthy economy of detail in just two dense pages, again as if what was being offered here were a mathematical proof of selfevident validity. In reality this is very far from being the case. I shall summarise the main points, assuming the reader has the Sanguineti stemma to hand. The archetype $\omega$ is established with reference to two readings (which need not concern us here, although we can note that one of them is certainly polygenetic ${ }^{58}$ ). The existence of the subarchetype $\alpha$ is established with reference to two readings; that of subarchetype $\beta$ with reference to five readings (Tavola 5). Of these seven readings at least one requires comment, and we will return to it shortly. On the basis of these readings - or so it would seem, for the point is not made explicitly - Urb alone is declared to be uncontaminated by alpha.

The arguments for the lower levels of the stemma are equally concise. The only proof offered of $x$, the supposed antigrafo of the five mss. Mart Triv Ash Ham and Rb , emerges almost incidentally: they share an error at Inf. iv 141 . Just one error. ${ }^{59}$ LauSC $(y)$ is shown to be separate from $x$ on the basis of one reading, confirmed by a second reading (supposedly a case of diffraction). Mart and Triv share an antigrafo a (Tavola 6), but derive from it independently. Ash and Ham share an antigrafo $b$, but they too derive from it independently. R and $b$ (AH)

[^26]have a common antigrafo $z$ : this is demonstrated on the basis of four readings (Tavola 7).

From the way the argument is developed one would have every reason to think that the evidence for all these key nodi in the stemma $-y x z a b-$ is of equivalent weight. But it is misleading to imply that the weight of evidence for $y x$ and $z$ is equivalent to that for $a(\mathrm{MT})$ and $b(\mathrm{AH})$. For these last two pairings there is overwhelming evidence of a common antigrafo, and negligible evidence for a different view; for $y x$ and $z$ there is much conflicting evidence which is simply not mentioned. This is a selective and heavily slanted presentation of the data, which makes no mention of problematic aspects of the situation. Sanguineti writes as though the proof he offers gives $100 \%$ certainty. If this terseness is imposed on him by limiting himself to the 400 loci, then Petrocchi's warning about its inadequacy as an editorial tool was only too well-founded. ${ }^{60}$

It is also disconcerting to find that some of the evidence offered is not as Sanguineti states it to be. Of the two readings he cites to establish the existence of $\alpha$, one is simply not as he describes it. At Par. i 26 (venire, e coronarmi de le foglie) he says that e coronarmi de le is only in Urb, while the other mss. have allor di quelle, so that in these manuscripts the line reads e coronarmi allor di quelle foglie. But in fact e coronarmi de le is also in AHR and the corrected LauSC; allor di quelle is only in MT and (probably - the reading is partly visible) the original LauSC. ${ }^{61}$ Sanguineti misreports the reading of LauSC: he has not seen the erased de qu (clearly visible on the original manuscript though perhaps not

[^27]so on a microfilm), and he makes no distinction between the original and the corrected forms of LauSC. ${ }^{62}$

This ignoring of the layering of readings in LauSC is worrying since the corrections are such a distinctive feature of the manuscript, but here it is a relatively minor slip. The key mistake as far as his argument is concerned is that the correct reading $e$ coronarmi de $l e$ is in AHR and the corrected L , so the erroneous allor di quelle cannot be an alpha identifier. We are left with just one error proving the existence of $\alpha$ - one error, that is, which separates Urb from the remaining manuscripts as the sole representative of $\beta$.

What is remarkable in Sanguineti's exposition is the small number of readings he offers to justify his groupings. (Cesare Segre in his review talks with studied understatement of a 'dimostrazione stemmatica ... reticente'. ${ }^{63}$ ) As noted, this hardly matters with the pairings MT and AH, where the evidence for a common ancestor is overwhelming and has long been recognised; but it is extremely problematic at higher levels of the stemma. For example, to mention one striking cause for concern, all four readings cited to prove an antigrafo ( $z$ ) common to $b(\mathrm{AH})$ and R fall between Par. iv 81 and v 128 - just one and a half cantos of the poem. To establish key links at higher levels by reference to just a few readings, and those readings all located in a very small area of the text, is quite simply an unconvincing argument in a text of this length. Since a principal plank in Sanguineti's general argument is the isolating of Urb on its own against the other six witnesses, which depends on proving a link between R and the alpha manuscripts, it is crucial for him to demonstrate beyond any shadow of doubt the solidity of $x$ and $z$, but this he has failed to do. We are again forced to conclude that sua probatio nulla est.

[^28]
## A crucial question: Ms. Rb and its position in the stemma

It is worth reiterating that the position of $\mathrm{ms} . \mathrm{Rb}$ in the stemma is critical for Sanguineti's argument: if he is wrong about that, tutto crolla - the whole edifice collapses. A crucial question for our project was to determine whether Rb is an alpha ms (as Sanguineti claims) or a beta ms (as Petrocchi maintains). ${ }^{64}$ This is not a trivial issue: if Rb is a beta manuscript, or its primary affiliations are with beta not alpha, then the whole basis of the new edition is called into question. Certainly Sanguineti has offered nothing which amounts to a proof. But this leaves the question open, as one which can usefully be investigated without preconceptions by computer analysis, which takes into account all the data, and not just a small sample of it. But before moving on to describe the methodology of this project, and its conclusions, we can usefully review Petrocchi's argument in support of his view that Rb is a beta manuscript.

We can note at the outset that there is a striking contrast between the perfunctoriness of Sanguineti's 'proof of Rb's supposed alpha affiliations based, as we have seen, on an exceedingly narrow evidence base in terms both of the number of variants and their distribution within the poem - and the painstakingly detailed, thorough, and careful argument put forward by Petrocchi to establish the existence of a beta family (Introduzione 334-89). The extended treatment, and the occasionally tentative formulation of his conclusions, reflects the complexities of the situation and the issues involved: a substantial portion of these pages is devoted to determining the position of the Landiano ms. in relation to both beta and alpha. The main thrust of Petrocchi's argument is to establish the existence of beta as a separate branch of the tradition, with Urb as its purest representative (that is, least contaminated with the alpha tradition), but with Mad and Rb providing important confirmatory testimony. Both Mad

[^29]and Rb , Petrocchi acknowledges - Mad more so than Rb - show evidence of contamination with alpha.

Petrocchi declares that Urb Mad and Rb have a closeness of a kind which Urb has with no other manuscripts, a closeness 'nettamente superiore per foltezza di statistica e natura dei casi a qualsiasi affinità tra il testimone urbinate e gli altri'. Note the phrase 'foltezza di statistica'. Rather than examine in detail what is an intricate argument developed over more than 50 pages, where much of the evidence presented does not bear on the immediate question of the relationship between Urb and Rb , I will concentrate on the cases cited to show that link (listed on p. 364); and I will look only at those readings (about half the total) where the Urb Rb variant appears in those manuscripts alone, or at most in just one or two other manuscripts. ${ }^{65}$

To clarify the argument, it will be useful to distinguish - among the readings which seem to show a close connection between Urb and Rb - between those where Petrocchi accepts the Urb Rb reading as correct and those where he rejects it. Both these groups - 'good' Urb Rb readings and 'bad' Urb Rb readings - support his stemma and are impossible to explain in terms of Sanguineti's stemma. To spell out the point: if Urb and Rb have the correct reading, they must have inherited it from the archetype: the bad reading will have been introduced in the antigrafo of alpha. If Urb and Rb share a reading judged to be erroneous, and the reading of alpha is accepted into the text, the error shared by Urb and Rb must have been introduced into an antigrafo they have in common. Both kinds of variant are at odds with the notion that Rb is an alpha manuscript.

[^30]But we should note at the outset that almost without exception Sanguineti rejects the idea that these Urb Rb readings are errors; he accepts almost all these readings into his text. Indeed, it should be noted that he believes his stemma imposes this on him: Urb represents $50 \%$ of the weighting, so where Urb has the support of another manuscript that reading becomes ipso facto maggioritaria. ${ }^{66}$ In terms of Sanguineti's argument there is only one category of reading here: good readings shared by Rb and Urb where the remaining tradition is (mostly) corrupt. But this change of status (good readings, not bad, in Sanguineti's view) still does not make these cases compatible with his stemma. If the errors were introduced into alpha, then Rb - if it is an alpha manuscript - should have them.

In what follows, I will restrict the manuscripts taken into consideration to the 'Sanguineti seven', as Sanguineti himself does, since those are the manuscripts I have examined directly. For ease of reference I will refer to them, as Sanguineti does, by their initials: Ash, Ham, LauSC, Mart, Rb, Triv, Urb. Petrocchi's apparatus provides readings for the other antica vulgata mss. at these various points, but there is nothing in that apparatus which affects the overall picture or the methodological point under discussion. While it is clear that restricting the discussion to just seven manuscripts gives a somewhat simplified view of the tradition of the Commedia, these are after all the rules of the game as laid down by Sanguineti himself, who insists that only these manuscripts should be utilised for the restitutio textus. We can anticipate an interesting conclusion by noting that in a number of cases the corrected version of LauSC - the reading added by the correcting hand over erasure - is identical to the RU reading (four out of eight in the first list, for example).

The reader is invited to consider the variants listed below with Sanguineti's stemma in mind. $M$ refers to the testimony of Mart: principally Martini's

[^31]collation but occasionally the original Aldine reading where it remains untouched $\left(\mathrm{M}_{\mathrm{a}}\right) ; \mathrm{L}_{0}$ is the scriptura prior of LauSC, $\mathrm{L}_{2}$ the reading added by the correcting hand; L with no qualifying number means the original reading was not changed when the text was revised.

The first group (where both Petrocchi and Sanguineti judge the RU reading to be correct) includes the following cases:

Inf. vii 118 che sotto l' acqua è gente che sospira, RU e gente ( R gienti) AHMTL a gente

Inf. xi 37 onde omicide e ciascun che mal fiere, $\mathrm{RU}\left(+\mathrm{L}_{2}\right)$ onde AHMT odii $\mathrm{L}_{0} \mathrm{O}[. .$.

Purg. xxi 61 De la mondizia sol voler fa prova, $\mathrm{RU}\left(+\mathrm{L}_{2}\right)$ sol voler AHMT solver $\mathrm{L}_{0}[\ldots]$

Purg. xxvii 32 volgiti in qua e vieni: entra sicuro!».
RU e vieni entra AH e vieni oltre $\mathrm{MTL}_{0}$ vieni et entra $\mathrm{L}_{2} \mathrm{e}$ vien oltre

Purg. xxx 35 tempo era stato ch' a la sua presenza $\mathrm{RU}\left(+\mathrm{L}_{2} \mathrm{M}\right)$ cha AHTL $\mathrm{M}_{\mathrm{al}} \operatorname{con}^{67}$

Par. i 25-26 vedra'mi al piè del tuo diletto legno
venire, e coronarmi de le foglie
$\mathrm{U}\left(+\mathrm{L}_{2}\right)$ Vedrami al (R Vedrai me a) pie del AH vedrami venire al MT venir vedrami al

RUAHL $_{2}$ venire e coronarmi de le MT ( $\mathrm{L}_{0}$ ) e coronarmi allor di quelle

[^32]Par. i 81 lago non fece alcun tanto disteso.
RU (+L) alcun AHMT mai

Par. xiii 28 Compié 'l cantare e 'l volger sua misura;
RU (+L) cantare AHMT cantore

Two of these RU readings are present also in Mad: Inf. vii 118 e gente and Par. i 25 vedrai me a pie.

The second group (where Petrocchi judges the RU reading to be an error but Sanguineti accepts it as correct) includes the following cases, where a single asterisk * indicates that the RU reading is also in Mad, and a double asterisk ** indicates that the reading is found in RU and no other antica vulgata manuscript:

Inf. xxi 107 iscoglio non si può, però che giace
RU (+A) potrà HMTL puo

* Inf. xxv 93 fummavan forte, e 'l fummo si scontrava.

RU ( $+\mathrm{M}_{\mathrm{al}}$ ) s'incontrava AHTL si scontrava ${ }^{68}$
*Inf. xxvii 54 tra tirannia si vive e stato franco.
RU $(+\mathrm{H})$ in AMTL $\mathrm{e}^{69}$
**Inf. xxvii 56 non esser duro più ch'altri sia stato,
$R\left(+L_{2}\right)$ ti (U te) sia AHMTL ${ }_{0}$ sia

[^33]Inf. xxviii 94 Allor puose la mano a la mascella
RU porse AHMTL puose

Inf. xxxi 106 Non fu tremoto già tanto rubesto, $\mathrm{RU}(+\mathrm{H})$ mai AMTL gia
*Inf. xxxiii 78 che furo a l'osso, come d'un can, forti.
$\mathrm{U}\left(+\mathrm{L}_{2}\right)$ forar 1 osso ( R foram 1 osso) ${ }^{70} \mathrm{AHMTL}_{0}$ furo a 1 osso

Purg. ii 109 di ciò ti piaccia consolare alquanto
RU consolarmi AHMTL 2 consolare $\mathrm{L}_{0}$ consolar[..]

Purg. v 97 Là 've 'l vocabol suo diventa vano,
$\mathrm{RU}(+\mathrm{H}) \mathrm{La}$ dove 1 nome AMTL La ve 1 vocabol
${ }^{* *}$ Purg. v 107 per una lagrimetta che 'l mi toglie;
RU tu 1 mi toglie $A_{0}$ MTL che 1 mi toglie $\mathrm{H}_{1}$ tu mel togli
**Purg. ix 13 Ne l'ora che comincia i tristi lai RU primi lai AHMTL tristi lai
**Purg. ix 15 forse a memoria de' suo' primi guai, RU tristi guai AMTL primi guai H antichi guai ${ }^{71}$
${ }^{* *}$ Purg. xi 41 si va più corto; e se c'è più d' un varco, RU e se va AHMTL e se ce
${ }^{* *}$ Purg. xv 79 Procaccia pur che tosto sieno spente, $R_{0} U$ sien si spente AMTL sieno (H sianno) spente $R_{1}$ sien spente

[^34]*Purg. xvii 28 intorno ad esso era il grande Assüero, RU a lui parea AHMTL ad esso era
*Purg. xxiv 61 e qual più a gradire oltre si mette, RU a guardar AH a gradire MTL a riguardar ${ }^{72}$

Purg. xxv 56 come spungo marino; e indi imprende R0U (+ $\mathrm{L}_{0}$ ) sfongo MT sfogo $\mathrm{AHR}_{1} \mathrm{~L}_{2}$ fungo [Petrocchi: spungo]
*Purg. xxxiii 95 sorridendo rispuose, «or ti rammenta RU ora $t$ amenta AHMTL or ti rammenta

Par. i 54 e fissi li occhi al sole oltre nostr' uso. RU volsi il viso AHMTL fissi li occhi

Par. xxxii 50 ma io discioglierò 'l forte legame RU (+H) dissolvero AT disciogliero ML ti solvero

In this second group, the reading of RU has occasionally contaminated isolated alpha mss, usually H and A ( H four times, A once). In roughly a third of these cases, the RU reading is also in Mad; in a quarter of them the RU reading is in no other antica vulgata manuscript; in the remaining cases the RU reading is found in just one or two antica vulgata mss. but the distribution is random.

It is noteworthy that these RU readings are spread across the whole poem, not clustered in single cantiche or in smaller groups of cantos. There are fewer of them in Paradiso, because there are proportionately more cases there of readings which (in terms of Sanguineti's stemma) set RU+AH against MTL.

Some but by no means all of the readings listed above are arguably polygenetic, but the following points are worth noting:

[^35]i. three of the readings are among Barbi's loci: one in the first list (Par. i 25 RU vedra'mi al pie), two in the second (Purg. xxiv 61 RU a guardar; Par. i 54 RU volsi il viso). These three (of which the first two are also in Mad) are all monogenetic even by the extremely stringent standards outlined by Brandoli. Has Sanguineti simply chosen to ignore them?
ii. five of the readings are among Petrocchi's 'errori prevalentemente monogenetici': four in the first list (Inf. xi 37 onde omicide; Purg. xxi 61 sol voler; Purg. xxx 35 cb'alcon; Par. xiii 28 cantare), one in the second (Inf. xxvii 54 e stato franco).
iii. there are other monogenetic errors in the list - at the very least Purg. v 97 la dove il nome and Purg. xvii 28 a lui parea.

So here we have ten monogenetic variants linking Rb and Urb. Even if, as Sanguineti maintains, none of these RU readings are errors, the fact that the error is in each case in alpha would seem to indicate that Rb cannot be an alpha manuscript.

And there is more. If we wish to get the measure of Petrocchi's phrase 'foltezza di statistica' we must go beyond the list he provided and look at other cases of readings common to RU (plus, occasionally, Mad). We can start with a striking case where in the space of a single line we find two variants found only in RU, one of them a correct reading found in no other antica vulgata manuscript (i.e. an $\alpha$ error not shared by RU), the other an error likewise found in no other antica vulgata manuscript (i.e. a $\beta$ error shared only by RU). The line occurs in Arnaut Daniel's speech on the last terrace of Purgatory:
**Purg. xxvi 143 consiros vei la passada folor
RU consiros AH con sitos M Con ci tost T con ci toz [L aysi quant uos]
R las passadas U la spassadas AHLMT la spassada [Petrocchi: la passada, Sanguineti: l'espassada]

For expository convenience I will divide the further readings now to be considered into three categories: small errors (A); variants shared with no other antica vulgata manuscripts (B.i) or with very few of them (B.ii); and variants shared with Mad alone or Mad plus one or two other antica vulgata manuscripts (C). Each of these individual cases might reasonably be dismissed as slight or inconsequential or barely worth recording; it is the cumulative weight of the whole series which is arresting.
A. Consider the following cases, where RU share an error which Sanguineti does not accept into his text (again a single asterisk indicates that the reading is also in Mad, while a double asterisk indicates that it is found only in RU and in no other antica vulgata manuscript). These are of course small errors, possibly polygenetic. Each one in itself would count for very little. But it is the cumulative picture built up of a whole series of such small errors right across the text and shared with no or very few other manuscripts which is significant and suggests a common exemplar.
**Inf. xiii 15 fanno lamenti in su li alberi strani.
U arbor ( R albor) strani MTL alberi strani AH arbori strani
The metrical error which leaves the line one syllable short is found only in RU. Sanguineti's arbor' [i]strani corrects the error.
*Inf. xiii 87 spirito incarcerato, ancor ti piaccia
RU spirto AHMTL spirito
Again a metrical error in $\mathrm{RU}(+\mathrm{Mad} \mathrm{Fi})$ is corrected by Sanguineti's editorial intervention: [i] spirto
*Inf. xiv 119 fanno Cocito; e qual sia quello stagno
RU quel stagno (R stangno) AHLMT quello stagno
Again a metrical error in RU ( +Mad ) is corrected by Sanguineti's quel' [i]stagno.
${ }^{* *}$ Inf. xvi 3 simile a quel che l'arnie fanno rombo, RU arne AHLMT arnie

A small error found in RU and no other manuscript is corrected in Sanguineti's text.
**Inf. xxix 15 forse m'avresti ancor lo star dimesso».
RU ancora il AHLMT ancor lo
An unacceptable variant form found in RU and no other manuscript is corrected in Sanguineti's text.
*Inf. xxix 51 qual suol venir de le marcite membre.
RU marcide AHLMT marcite
The variant marcide is found in RU and Mad alone. Whether we think of marcide as an adjective, instead of marcite, a past participle, with the accent on the first instead of the second syllable, or whether we consider this as a formal variant only, with voicing of the plosive $t>d$, the reading is judged unacceptable by Sanguineti.

Inf. xxxiii 34 In picciol corso mi parieno stanchi
RU parean MT parieno AL pareano H pareanno
A metrical error found only in RU and the scriptio inferior of ms. Landiano is corrected by Sanguineti's parean [i]stanchi.
*Purg. xii 1 Di pari, come buoi che vanno a giogo, RU bue AHLMT buoi

Again a variant found only in UR and Mad is rejected by Sanguineti.
*Purg. xv 6 vespero là, e qui mezza notte era.
RU vespro AHLMT vespero
Again a metrical error in UR and Mad (+Co La Parm) is corrected by Sanguineti's vesp[e]ro.
${ }^{* *}$ Par. x 99 è di Cologna, e io Thomas d' Aquino.
U Thomaso (R thomaxo) AHLTM Thomas
Sanguineti corrects the metrical error which is found only in RU and no other manuscript. The scribes of two other antica vulgata mss. (Eg Gv) make the error but immediately correct it.
*Par. xxiii 25 Quale ne' plenilunïi sereni
RU Quali AHLMT Quale
Sanguineti corrects the error found only in UR + Mad and one other antica vulgata manuscript (Laur).
B. The second category of cases I shall consider is that where RU alone have a variant not attested elsewhere in the antica vulgata manuscripts. Again the variants are in themselves slight and singly would count for little. It is the consistency with which such variants appear in RU and no other manuscripts which gives us pause for thought. In all these cases Sanguineti accepts the reading of RU into the text. (Where AHLMT have insignificant spelling variations a regularised form of the reading is shown here.)
${ }^{* *}$ Inf. iv 66 la selva, dico, di spiriti spessi.
RU de ( U di) li spirti AHLMT di spiriti
The addition of the article is compensated for by the loss of a syllable in spirti.
**Inf. xvii 50 or col ceffo or col piè, quando son morsi RU col pie AHLMT coi pie
**Inf. xxvi 5 tuoi cittadini onde mi ven vergogna,
R men ven ( U min uien) HMT mi ven AL mi vien [Sanguineti: mi'n ven]
** Inf. xxviii 118 Io vidi certo, e ancor par ch' io 'l veggia, RU che AHM ch io LT ch i
**Inf. xxxii 71 fatti per freddo; onde mi vien riprezzo,
RU men ven ( U min uen) AHLMT mi vien [Sanguineti: mi'n ven]
${ }^{* *}$ Inf. xxxii 114 di quel ch' ebbe or così la lingua pronta.
RU la lingua cosi AHLMT cosi la lingua
${ }^{* *}$ Purg. v 54 quivi lume del ciel ne fece accorti, RU ma qui HLMT quivi A quive
**Purg. v 120 di lei ciò che la terra non sofferse RU cio che di ( R da) lei AHLMT di lei cio che
**Purg. vi 25 Come libero fui da tutte quante RU Come io AHLMT Come
${ }^{* *}$ Purg. vi 26 quell'ombre che pregar pur ch'altri prieghi R quel anime U 1 anime AHLMT quell ombre
**Purg. vi 51 e vedi omai che 'l poggio l'ombra getta».
U ombra il poggio R 1 ombra il pogio AHLMT 1 poggio 1 ombra
${ }^{* *}$ Purg. vi 109 Vien, crudel, vieni, e vedi la pressura RU vedrai AHLMT vedi
**Purg. vi 126 ogne villan che parteggiando viene.
U ciascun R Ciaschum HLMT ogni A ogne
${ }^{* *}$ Purg. vii 82 'Salve, Regina' in sul verde e 'n su' fiori RU sul verde e sui fiori AHLMT in sul verde (H erba) e in su fiori
**Purg. ix 51 vedi l'entrata là 've par digiunto.
RU dove il AHLMT la ve (A dove)
**Purg. ix 90 ne disse: "Andate là: quivi è la porta"». RU ch ivi AHLMT quivi
**Purg. ix 110 misericordia chiesi e ch' el m' aprisse, RU ch el AHLMT che
**Purg. x 122 che, de la vista de la mente infermi, RU nella mente AHLMT de la mente
**Purg. xi 120 ma chi è quei di cui tu parlavi ora?». RU cui parlavi AHLMT cui tu parlavi
**Purg. xix 25 Ancor non era sua bocca richiusa, RU rinchiusa AHLMT richiusa
**Purg. xxii 17 più strinse mai di non vista persona, RU alcun AHLMT mai
**Purg. xxiii 33 ben avria quivi conosciuta l' emme. RU ivi AHLMT quivi
${ }^{* *}$ Purg. xxiv 82 «Or va», diss' el; «che quei che più n' ha colpa, RU v a colpa AHLMT n a colpa
**Purg. xxvi 103 Poi che di riguardar pasciuto fui, RU del AHLMT di
**Purg. xxxiii 59 con bestemmia di fatto offende a Dio, RU Idio AHLMT a dio
**Par. vi 79 Con costui corse infino al lito rubro; RU fino AHLT infino $M$ infin
** Par. x 72 tanto che non si posson trar del regno;
U di (R de) AHLMT del
**Par. xi 61 e dinanzi a la sua spirital corte
RU spirtual HMT spiritual AL spirital
**Par. xi 118 Pensa oramai qual fu colui che degno RU chi AHLMT qual
** Par. xxv 116 mosser la vista sua di stare attenta RU mosser ... da AHLMT mosse ... di
B. ii. We can add to this second group a supplementary list where a reading appears in RU and just one or two other antica vulgata manuscripts:

Inf. iii 3 per me si va ne la perduta gente
RU ne la AHLMT tra la [ne la is the corrected reading in ms. Landiano]

Inf. xxiii 123 che fu per li Giudei mala sementa».
RU fuor AHLMT fu
[Pa fur]

Inf. xxxi 56 s' aggiugne al mal volere e a la possa, RU se giunge AHLMT s aggiunge [Sanguineti: si giunge] [+Co]

Purg. iv 82 per la ragion che di', quinci si parte
RU che quinci si ( U se) diparte AHLMT che di quinci (A qui) si ( T se) parte
[+Laur Po]
It seems likely that an omitted di has been inserted in the wrong place in the antigrafo of RU.
*Purg. iv 137 e dicea: «Vienne omai; vedi ch’ è tocco
RU Vieni HLMT vienne A venne
[+Laur Pr; Mad veni]

Purg. vi 36 se ben si guarda con la mente sana;
RU s intende AHLMT si guarda
[+Laur]

Purg. vi 148 E se ben ti ricordi e vedi lume, RU Ma AHLMT E (or Et)
[+Co]

Purg. xxviii 123 come fiume ch' acquista e perde lena;
RU 1 altra AHMT fiume $L$ flume
[+Po]

Purg. xxxi 94 Tratto m' avea nel fiume infin la gola,
RU fino a gola HMT infin la gola AL infino a (L ad) gola
[+La]

Par. xix 34 Quasi falcone ch' esce del cappello,
RU falcon ch (R che) uscendo $\mathrm{AHL}_{2} \mathrm{MT}$ falcone ch esce [+Eg]

Both forms of the line have the required eleven syllables. $\mathrm{L}_{0}$ has uscendo but also falcone, so the line in $L_{0}$ is metrically faulty with one syllable too many.

If we were to supplement the list by adding cases where an RU variant is shared by three or four antica vulgata manuscripts the list would be much longer.
C. Finally we can consider those cases where an RU variant is shared only with Mad (cases marked ${ }^{*}$ ), or with Mad and just a few other antica vulgata manuscripts, as indicated case by case.
*Inf. viii 106 Ma qui m’ attendi, e lo spirito lasso
RU spirto AHLMT spirito
The loss of a syllable is compensated for by dialefe so the line is still metrically acceptable.
*Inf. xxiv 21 dolce ch' io vidi prima a piè del monte.
RU al pie AHMTL a pie
*Inf. xxvi 74 ciò che tu vuoi; ch' ei sarebbero schivi,
RU voli ... sarebber AHLMT vuoi ... sarebbero [A sarebbon H sarebber]

Only RU and Mad have the combination voli and sarebber, a metrically acceptable alternative to vuoi ... sarebbero.
*Purg. xii 55 Mostrava la ruina e 'l crudo scempio
R esempio (U exempio) AHLMT scempio
*Purg. xiii 71 e cusce sì, come a sparvier selvaggio
R chuse ( U cusi) come a sparavier AHLMT cusce si come a sparvier

The missing $s i$ in RU is compensated for by the extra syllable in sparavier, so the line is metrically correct; Mad omits si, but has sparvier, so in Mad the line is a syllable short.
*Purg. xiii 121 tanto ch' io volsi in sù l’ ardita faccia, RU tanta AHLMT tanto
*Purg. xvi 13 m'andava io per l'aere amaro e sozzo, RU si $m$ andava AHLMT $m$ andava
*Purg. xviii 64 Quest' è 'l principio là onde si piglia RU dove AHLMT onde
*Purg. xviii 144 che li occhi per vaghezza ricopersi, RU 1 occhio AHLMT li occhi
*Purg. xxi 131 al mio dottor, ma el li disse: «Frate, RU ma ei disse AHMT ma (A ed) el li disse $L_{2}$ ma egli disse (Mad ma il disse)

The pronoun $l i$ is missing only in RU + Mad.
*Purg. xxii 41 de l'oro, l'appetito de' mortali?', RU gli appetiti AHLMT 1 appetito
*Purg. xxxi 120 che pur sopra 'l grifone stavan saldi.
RU grifon ... stavano AHLMT grifone (A grifon) ... stavan
Ash has grifon but does not compensate with stavano so the line is metrically faulty whereas the RU + Mad reading is metrically correct and is adopted by Sanguineti.
*Par. viii 20 muoversi in giro più e men correnti, RU giri AHLMT giro
*Par. ix 49 e dove Sile e Cagnan s' accompagna, RU 1 Cagnan ALMT Cagnan H chagna
*Par. xvii 105 che vede e vuol dirittamente e ama:
RU vole drittamente AHLMT vuol dirittamente (T drictamente)
Only RU have both variants (verb and adverb) and produce a metrically acceptable line; isolated mss. have drittamente like $\mathrm{T}(+\mathrm{Eg} \mathrm{Pa})$ or vole like Mad (+ Lau Ricc) but not the combination of the two, so their lines are metrically faulty.

Inf. xxxiii 6 già pur pensando, pria ch' io ne favelli.
RU che AHLMT ch io (LM i)
[+Co]

Purg. xii 18 portan segnato quel ch' elli eran pria,
RU quali (R qual) egli eran AL quel ch elli eran HMT quel ch egli era [+Po]

Purg. xvi 121 Ben v' èn tre vecchi ancora in cui rampogna
RU ve ALMT ven H va
[+Po]

Purg. xvii 81 poi mi volsi al maestro mio, e dissi:
RU mio maestro AHLMT maestro mio [+Co]

Purg. xviii 55 Però, là onde vegna lo 'ntelletto
RU donde AHLMT onde
[+Fi La Parm]

Purg. xviii 58 che sono in voi sì come studio in ape
RU come AHLMT si come
[+Po]

Purg. xx 137 dicean, per quel ch' io da' vicin compresi,
$\mathrm{RU}\left(+\mathrm{L}_{2}\right)$ che AHLMT ch ( H che) io
[+Co Po Laur]

Purg. xxi 57 non so come, qua sù non tremò mai.
RU trema AHLMT tremo
[+Co]

Purg. xxii 26 un poco a riso pria; poscia rispuose:
RU e poi AHLMT poscia
[+Co Eg Laur]

Purg. xxxi 137 a lui la bocca tua, sì che discerna
RU ch ei AHLMT che

$$
[+E g ~ G a]
$$

The variants we have been examining are genuine variants (in some cases small errors), but slight in their import if considered singly. What is striking, and very significant, is the presence of the whole set in just two or three manuscripts (those which make up Petrocchi's beta family) with occasional extension to a few other isolated antica vulgata manuscripts. The kinds of variant we have been considering fall into the following categories (which sometimes overlap):

1. substitution of a different word
eg. anime - ombre; ciascun - ogni; s intende - si guarda; 1 altra - il fiume; esempio - scempio; e poi - poscia ; chi - qual; Ma - E; alcun - mai; quali quel; dove - onde; dove il - la ve; ch ivi - quivi; nella - de la; rinchiusa richiusa; ivi - quivi; va-n a
This last scambio $-\mathrm{u} / \mathrm{n}-\mathrm{might}$ be thought the most banal instance of polygenesis, but given the ease with which such misreadings occur it is striking that in the whole antica vulgata tradition we find it here only in RU.
2. a change in word order eg. la lingua cosi - cosi la lingua; cio che di lei - di lei cio che; 1 ombra il pogio - il poggio 1 ombra; che quinci si diparte - che di quinci si parte; mio maestro - maestro mio
3. addition or omission of the definite article eg. de li spirti - di spiriti; del riguardar - di riguardar; di regno - del regno; al pie - a pie; 1 Cagnan - Cagnan
4. addition or omission of the first person pronoun io (com'io/come, ch'io/che) or the third person pronoun el (ch'el/che)
eg. Inf. xxviii 118; Purg. vi 25; Purg. ix 110; Inf. xxxiii 6; Purg. xx 137; Purg. xxxi 137
5. addition or omission of a small word eg. cui +tu+ parlavi; +si+ m andava; +si+ come; -in- sul verde e -in- su fiori; ma el-li- disse
6. singular for plural or vice versa eg. gli appetiti - 1 appetito; giri - giro; 1 occhio - li occhi; col pie - coi pie
7. variants with an extra or missing syllable which affects scansion: sometimes the substitute form results in a metrical error (a), but sometimes the error is compensated for by a small adjustment to another word (b)
(a) eg. arbor - alberi; spirto - spirito; quel - quello; parean - pareano; vespro vespero; Thomaso - Thomas
(b) eg. falcon ch uscendo - falcone ch esce; voli ... sarebber - vuoi ... sarebbero; cusce come a sparavier - cusce si come sparvier; grifon ... stavano - grifone ... stavan; vole drittamente - vuol dirittamente
8. different forms of the verb (tense, number, etc) eg. vedrai - vedi; fuor - fu; trema - tremò; si giunge - s aggiunge; vieni vienne; ve - ven eg. fino a gola - infin la gola; Idio - a dio; ma qui - quivi

Some of these categories are not especially significant in themselves (many of them are included in Brandoli's categories of polygenetic error). Singly, they mean next to nothing. But it is the presence of a long series of them uniformly right across the text in a very small number of manuscripts which is striking (and this is surely what Petrocchi's phrase 'foltezza di statistica' refers to at least in part). It is simply impossible to imagine that copyists working independently would make precisely these small changes at precisely these same points right
across a text of this length. The most economical hypothesis is that they are working from a common exemplar and inherit these readings from that exemplar. It seems extremely likely in the face of this evidence that the three manuscripts identified by Petrocchi as constituting his $\beta$ family do indeed have a common ancestor ( $e$ in Petrocchi's stemma), and, for our immediate purposes in assessing the validity of the Sanguineti stemma, that Rb and Urb have an antigrafo in common. The computer analysis of the data, as we shall see, will unequivocally confirm this finding.

## The computer analysis

Before turning to the computer project and explaining its methodology and its conclusions, we can consider two points of general interest about the textual tradition of the Commedia as a whole. The first is that the intricate and demanding metrical form Dante devised for the poem protects it from textual degradation surprisingly effectively, in a way which is not true for many medieval texts. The terza rima scheme, with its highly patterned recurring rhymes, is in itself a force for textual stability. Any break in the pattern will be very obvious, so the incidence of missing portions of text is extremely low. When the copyist of Ham occasionally skips a terzina, as he does at Purg. xxviii 95-97, the effect is shocking, as the forward flow of the rhymes abruptly comes to a halt. Most manuscripts of the poem present the whole poem or the cantiche they contain in their entirety. Thus the most useful analytical tool for an editor trying to establish a stemma - the presence of significant omissions ('il principe degli errori', as Contini called it) which enable one to link manuscripts which share them - is not available to the editor of the Commedia. ${ }^{73}$ Omissions are likely to be of syllables rather than of lines or terzine or even of words. Missing syllables will give metrically faulty lines, and alert copyists may compensate by adding a syllable somewhere else in the line (as in the cases at 7b above, where it is impossible to know which is the original and which the corrected version of the

[^36]line), but such omissions are too slight in themselves to offer the editor any real help in establishing manuscript relationships. Likewise very few manuscripts of the Commedia have interpolations in the text. ${ }^{74}$

The second point of general interest is the commonplace, accepted by all textual scholars as an accurate reflection of textual and social realities, that marginal or peripheral geographical locations tend to be more conservative and less textually innovative than large centres: in large centres we tend to find 'active' rather than 'passive' traditions of copying. ${ }^{75}$ The case of the Commedia illustrates the point very well: the texts copied in Florence, which early on became a highly productive centre for the making and diffusion of copies of Dante's poem, with professional scriptoria supplying the burgeoning market, tend to be more altered, more contaminated, more degraded than copies which originate from the periphery, in this case from Northern Italy. Thus it is easier to demonstrate the relationships among manuscripts copied in Florence (the vat group, the gruppo del Cento, MT), with their sometimes very distinctive readings, than it is among those which were copied in the North, which are more conservative and have fewer innovations.

All recent Dante textual scholars, from Petrocchi to Sanguineti, agree that the Northern manuscripts are the least corrupt, with Urb in particular, in spite of its 1352 date, showing a resistance to the spread of textual innovation from Tuscany. ${ }^{76}$ Given this situation, it is not surprising that proving a relationship

[^37]between Mad, Rb and Urb, and more narrowly between Rb and Urb, is more difficult than proving a relationship between some of the Tuscan groups with their distinctive and characteristic variants. ${ }^{77}$ It is precisely because these northern manuscripts are the most conservative that there are fewer distinctive variants to link them. It is in this context that it becomes important to consider textual variants which in themselves are slight, but which taken as a set do seem to indicate derivation from a common exemplar.

Computer analysis of the textual tradition takes all significant variation into account. The cases examined above certainly count as significant variation. They are not merely spelling or formal variants: these have been carefully regularised out of the computer files in all the manuscripts. ${ }^{78}$ They are genuine, if small, textual variants which can help us - with the aid of very sophisticated computer programmes - to establish manuscript relationships. Exactly the same criteria for regularising a variant to base text or leaving it to display as a real variant in Word Collation were used right across the tradition, for all seven manuscripts examined. If the results of the computer analysis are accepted as valid for mss. AHMT and L, there is no reason that they should not be accepted as valid for mss. R and U .

The digitally-generated stemma conforms very closely to both Petrocchi's and Sanguineti's analysis of the relationships between AH and MT, although it is closer to Sanguineti than to Petrocchi in placing H as a collaterale of A rather than a descendant. It does not confirm Sanguineti's original view of the position of LauSC as a separate branch of alpha, as described in the edition, but on the contrary is strongly supportive of his revised view of its position, which as we

[^38]have seen, places the Villani codex precisely where Casella had placed it in 1924, as a collaterale of MT. And the results for Rb and Urb are unequivocal: the computer-generated stemma places Rb alongside Urb as two manuscripts which have an antigrafo in common.

Here is the tree for the whole poem for the seven manuscripts, where $\mathrm{L}=\mathrm{L}$, that is to say the scriptura prior of LauSC, whose corrected readings have not been included in the phylogenetic analysis:

All mss, whole text


- 1000 changes

Here is the tree for the whole poem for the seven manuscripts plus the Sanguineti text, showing again not just the expected closeness of Sanguineti's text and Urb, but also the closeness of Rb to both (again the analysis has used only the readings of the original LauSC hand, i.e. again $\mathrm{L}=\mathrm{L}_{0}$ ).

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Allmss + FS, whole text
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$\qquad$ 1000 changes

And here is the tree for the whole poem for the seven manuscripts plus the Petrocchi text, showing clearly, as we would expect, that Petrocchi's text is
much less closely aligned to any single manuscript or manuscript group; again Rb and Urb clearly derive from an antigrafo in common (once again $\mathrm{L}=\mathrm{L}_{0}$ ). Note also how precisely the computer-generated diagram places PET between Urb and Triv, the two key witnesses for Petrocchi's editorial restitutio textus. ${ }^{79}$

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Allmss + Pet, whole text
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- 1000 changes

[^39]For a detailed account of these trees, their making and their implications, I refer the reader to VI. The PhYLOGENETIC ANALYSIS, where trees will also be found for single cantiche, that is for Inferno, Purgatorio and Paradiso separately, and for some smaller groups of cantos. I can anticipate by saying that, interestingly, the trees for Inferno and Purgatorio are indistinguishable from those for the whole text, while the tree for Paradiso shows a slight variation, with Rb and Urb less closely linked, though Rb is still closer to Urb than to any other manuscript, and is not aligned with any alpha manuscripts. It is not entirely surprising that the tree for Paradiso should be slightly different from the other two. We can usefully remind ourselves that the Rb Paradiso codex is a separate physical entity from the codex which contains the first two cantiche (the former now located in Milan, the latter in Florence ${ }^{80}$ ): this physical separateness may have some connection with the circumstances of their copying and thus the transmission history of the text they contain. We may also remind ourselves of the fact that all Sanguineti's instances of errors which link Rb to AH to constitute his putative $z$ occur in a small section of the last cantica (see above, Sanguineti's Argument: The Stemma). In other words, the contamination with $\alpha$ which Petrocchi identified and acknowledged in Rb is more strongly evident in the Paradiso than in Inferno or Purgatorio, although that contamination - as the computer-generated tree unequivocally demonstrates - does not destroy Rb 's primary $\beta$ affiliation.

## Sanguineti's argument: the text

In the light of the conclusions just reached about the stemma, it becomes superfluous to examine the argument about Sanguineti's constitution of the text, with its heavy reliance on Urb, invoked repeatedly as the best manuscript and closest to Dante's original. The objections rightly made by Segre to this treatment of Urb are worth repeating: 'L'inconveniente di un codice isolato sul suo ramo è che alle innovazioni del suo archetipo si aggiungono quelle del codice

[^40]stesso ... In una situazione simile, e dunque a norma lachmanniana, l'idolatria del bon manuscrit è assolutamente fuori luogo. È probabilissimo, anzi sicuro, che molte lezioni dell'urbinate siano semplicemente innovazioni del copista. ${ }^{81}$ This comment, while very much to the point for a stemma where a single manuscript represents a whole branch of the tree, becomes irrelevant when that situation no longer holds good, and R is accepted as collaterale to U. Since Sanguineti's restitutio textus is entirely governed by his stemma, with, as he himself insists, very little room for editorial discretion, ${ }^{82}$ once the stemma is shown to be incorrect, the debate about the constitution of the text is reconfigured. Of course Sanguineti's subsequent adjustment of his stemma to include Florio as a beta manuscript addresses Segre's very pertinent criticism in an entirely different way. ${ }^{83}$

## Manuscripts and computers: a way forward

I began this introduction by noting the fundamental problems facing an editor of the Commedia: on the one hand, the richness of the manuscript record - the sheer size of the surviving tradition and the quantity of data which ideally should be analysed in toto; on the other, the internal problems of contamination and polygenetic error, inherent in the transmission process itself and exacerbated by the circumstances in which the text was first put into circulation. In the course of this survey I have reviewed key stages in the history of scholarly engagement with these interlocking issues, tracking the evolving approaches adopted by scholars to the challenge of producing a critical text of the poem. We can now

[^41]usefully review that history briefly as a preliminary to considering what the way forward might be in this new age of computer technology.

Witte based his 1862 edition on just four manuscripts of the poem, privileging LauSC over the other three, after first collating a single canto (Inferno iii) in over 400 manuscripts in order to establish which were, in his view, the most reliable and authoritative copies. Moore collated the Inferno in its entirety in all seventeen manuscripts in Oxford and Cambridge libraries, and partially collated the whole poem in over two hundred others, using Witte's text as his collation copy: behind his 1894 edition (reprinted many times) lay the vast scholarship of his fundamental Contributions (1889). Barbi, following a suggestion of Moore's that the way forward, at least for the time being, must be through an analysis of loci selecti, ${ }^{84}$ drew up his list of 400 loci (1891), confident that a collation of these lines in the whole tradition would constitute an indispensable starting-point for an editor aspiring to produce a critical text of the poem. Vandelli, with his unrivalled knowledge of the textual tradition, concluded (like Witte and Moore before him) that it was not possible to devise a genealogical tree for the poem, and in his edition (1921, reprinted and aggiornato many times) adopted instead the working method of attempting to reconstruct the genealogy of the singolo passo.

A decisive turning-point in the history of Dante textual scholarship occurred just a few years later when Casella, in his influential 1924 article, identified two families of manuscripts, of hugely unequal size but of equal value, and postulated the existence of an archetype from which they all descended. An embryonic family tree had thus been created. All scholars working since then have had to come to terms with the need to evaluate Casella's conclusions and clarify, finetune, revise or reject his stemmatic hypothesis. Petrocchi, as we have seen,

[^42]limited himself to manuscripts he believed to be securely datable before 1355, and abandoned the attempt to reconstruct the archetype, settling instead for an edition of what he called the antica vulgata (1966-67), the poem as it circulated in the decades immediately following the author's death. Lanza produced an edition (1995) based in effect on a single manuscript, the one he believed best conformed to Bédier's notion of the bon manuscrit. Sanguineti returned to the 400 loci, but collated them in a far larger number of manuscripts than had hitherto been attempted, and claimed to have devised a stemma constructed according to Lachmannian principles, on which his edition (2001) was based; but the claim as we have seen does not stand up to close scrutiny.

It is time now to describe the advantages of a new methodology, the application to manuscript studies of computer technology. Computer analysis takes into account all the data relating to any given witness, right down to apparently tiny variants which conventional analysis would dismiss as trivial. As a methodology it is precisely the opposite of choosing a small sample of 'significant' readings and basing the analysis on them, ignoring everything else (Barbi's 400 loci, subsequently championed by Sanguineti, represent, we remember, less than 3\% of the text). One immediate advantage of using computer technology is that it removes the element of human judgment from the equation when devising the groupings of manuscripts in a stemma - and it is worth reminding ourselves that a primary goal for Lachmann's methodology was precisely to minimise the role of editorial iudicium in constituting the text.

The analogy between the copying of genetic material in DNA replication and the efforts of a medieval scribe to make a copy of Dante's poem may at first glance seem far-fetched, and the notion of using computer programmes designed to analyse the first to investigate the second may seem fantastical. DNA replication is a process outside human intention and control; transcribing a text, accurately or inaccurately, is entirely a matter of fallible and conscious human endeavour. Furthermore, the use of computer analysis seems counter-intuitive
in the context of a textual tradition because it ignores the two obvious characteristics of such a tradition which distinguish it from a string of DNA: meaning and value. Words convey meaning, they have semantic content; and they have value: they either make sense or they do not, and - in the case of a literary text - they may be thought to have greater or lesser aesthetic impact. In poor copies Dante's text can at times degenerate into complete nonsense when the knock-on effect of a first misreading leaches out into the surrounding text, as scribes try to compensate or adjust or simply give up on making sense of the lines. ${ }^{85}$ In cases like this the words have ceased to have either meaning or value.

How is a computer programme to detect this? How can it not be important to recognise readings where every vestigial trace of the author's original meaning has disappeared? But both these 'textual' qualities - meaning and value - have parallels with DNA. The genetic information string may consist of chemicals but it has meaning: something is expressed by or in the genes, which can be 'read' and understood by a competent geneticist; it also has value, because certain genetic configurations correlate with more or less efficient survival mechanisms. There are even parts of the genetic information string which are 'junk' or nonfunctional. And on closer examination the analogy between the two procedures - DNA replication and the copying of manuscripts - proves to be surprisingly exact and potentially very fruitful.

There are in fact many similarities between the inheritance and accumulation of scribal alterations through successive generations of copying, and the inheritance and accumulation of genetic mutations in molecules of DNA through successive generations of living organisms. In both cases, a string of information is copied reasonably accurately (words in the case of a manuscript, or nucleotides - the

[^43]repeating chemical units that make up the molecule - in the case of DNA), resulting in two copies of the same string of information. In both cases, however, changes can occur, resulting in alterations to the text or mutations in the DNA.

Many common types of textual change have parallels in DNA mutations. Substitution of one word for another is analogous to the substitution of a nucleotide. Similarly, insertion or omission of words is analogous to the insertion or deletion of nucleotides. A scribe using more than one exemplar while copying a text creates a hybrid 'contaminated' text, which may either contain sections from each exemplar used, or incorporate individual readings from a second copy into the original base text. This has a direct parallel with genetic recombination, where related DNA molecules produce a hybrid, or lateral gene transfer, where DNA is exchanged between distantly related organisms. ${ }^{86}$

The 'trees' produced in evolutionary biology are based on all the evidence: all the nucleotides, the complete information string. Nothing is discarded or regarded as irrelevant. There is no selection of data. The relationships thus established are secure, the best hypothesis that science can provide of the relationships between the species in question. The conclusions of the computer analysis may modify or even run counter to those of traditional phylogeny: thus for example it has recently been established that there is a family connection between the extinct British woolly mammoth and the Asian elephant, a relationship which had eluded conventional phylogenetic analysis. The programmes used in these biological analyses have been fine-tuned and perfected over decades precisely for the purpose of producing genealogical trees (also

[^44]known as evolutionary trees or phylogenetic trees) based on the analysis of variation within successive generations of copying.

We are fortunate now to have a test case which has shown just how well the computer programmes devised by biologists lend themselves to the analysis of textual traditions. In a blind study run by evolutionary biologists at the University of Cambridge, the computer files generated by the digital edition of Dante's Monarchia were subjected to phylogenetic analysis using programmes designed for establishing evolutionary trees for living organisms. The results of the computer analysis, carried out by scientists who had no knowledge of the text they were dealing with beyond the fact that it was a text, were uncannily close to the results given by traditional scholarly investigation. All the manuscript groupings identified by traditional Lachmannian methodology were replicated exactly in the computer-generated tree. It is only at the highest levels of the stemma that the computer fails to provide answers: it does not identify the starting point (the ancestor or archetype) of the tradition. But where there is a disputed relationship, as in the Commedia there is with ms. Rb (does it belong with the $\alpha$ family or is it a $\beta$ manuscript?) the computer analysis will give us a secure answer.

It is worth reiterating the advantages of the computer analysis over traditional textual scholarship. In preparing the files for computer analysis the scholar makes no decisions about the significance or insignificance of a given reading. There is no weighting of evidence: indeed in this respect the system is counterintuitive. When the blind test was being set up, I had assumed that some such weighting system would operate: that omissions would be accorded a greater weighting than mere variants, for example, and that sauts du même au même, because they are potentially polygenetic, would count for less than omissions where there was no textual stimulus to generate an eyeskip. To establish a hierarchy of evidential force seemed a necessary part of the procedure. This was
an assumption inherited from traditional textual scholarship which proved to be unnecessary.

Lachmannian methodology is based on the identification and classification - the evaluation - of kinds of error. Thus, in traditional scholarship, assessing the significance of variants is a large part of the editorial process, and draws on the scholar's expertise. Is a variant monogenetic or polygenetic? congiuntiva or separativa? an involuntary slip or a deliberate innovation? linguistically correct (or at least possible) or clearly erroneous? facilior or difficilior? All these kinds of discrimination count for nothing in the new context. For the computer analysis all that matters is accuracy - the accuracy with which the data is entered into the files.

In reality of course scholars often disagree in their evaluation of variants - the weight or significance to be attached to them - and these disagreements often seem to be unresolvable: thus Sanguineti thinks the omission of diss'io at Purg. ii 93 is highly significant whereas Petrocchi had judged it not to be so. ${ }^{87}$ Such evaluations are also easily reversible - scholars can change their minds - as when Sanguineti himself first judges e Lino at Inf. iv 141 (Tullio e Lino e Seneca morale) to be a correct reading preserved in Urb and LauSC against the corrupt reading of his $x$, but subsequently decides it is an archetype error corrected independently in these two manuscripts - a change of opinion which leads to a radical alteration in his stemma and the repositioning of LauSC. ${ }^{88}$ Who is to say

[^45]which of these views is correct? The computer analysis gives us an answer, and that answer is independent of anyone's opinion: LauSC is a collaterale of MT, so Sanguineti's revised interpretation of the evidence is more likely to be correct than his original one. The wilder speculative variants which some later manuscripts introduce at this point in trying to make sense of the text include not just alino, but alano, livio, plinio, and even, improbably, merlino. ${ }^{89}$ But the computer analysis dispenses with any need to evaluate them. It deals simply with the facts of the textual tradition, recorded as accurately as possible in the digital files, and produces its analysis accordingly.

As our blind study established, the results of the computer analysis are uncannily close to those of a traditional Lachmannian analysis for the groups at lower levels of the stemma. Only the archetype eludes the computer analysis, since what the computer produces is not strictly speaking a tree but a phylogram: the proof of an archetype remains as elusive as ever. But so far no one has provided a satisfactory demonstration of the existence of an archetype for the Commedia using traditional methodology and scholarly expertise - not Casella, not Petrocchi, and not Sanguineti. Casella's archetype was, in Folena's phrase, 'postulato ma non dimostrato'; the same is true of Petrocchi's $O$, as scholars have not failed to point out; ${ }^{90}$ and Sanguineti's proof is no more satisfactory, since his two examples of archetype errors are in one case polygenetic and in the other highly conjectural.

[^46]Results of the computer analysis
The computer analysis, though limited to just seven witnesses, yields several interesting and thought-provoking results for Dante scholarship.
i. Manuscript relationships.

Mart and Triv
The analysis confirms that Mart and Triv are collaterali, as Petrocchi and Sanguineti agree; the relationship is not one of direct descent, as Vandelli ${ }^{91}$ and more recently Folena ${ }^{92}$ had believed. If the relationship had been one of direct descent, the phylogram would have shown an extremely short arm for Triv branching off from the junction which links the two, and that junction would have been very close to Mart itself. Compare, for example, the phylogram for the Monarchia which shows the relationship between E and R , where R is descriptus from E , and between L and Q , where Q is descriptus from L (the diagram reproduced here shows just the relevant section of the phylogram):


[^47]A point still at issue is whether Triv is contaminated or not. Here Petrocchi and Sanguineti disagree, Petrocchi maintaining that the Mart-Triv antigrafo $a$ is not contaminated (on this view Forese is assumed to contaminate as he copies it by incorporating readings from other manuscripts), ${ }^{93}$ while Sanguineti ${ }^{94}$ (followed by Trovato ${ }^{95}$ ) believes that $a$ is itself contaminated. This is a fundamental point, since a firm basis of Petrocchi's edition is that Urb + Triv will normally guarantee a good reading. ${ }^{96}$ clearly the computer analysis cannot throw light on this question. ${ }^{97}$

## Ash and Ham

Moving on to areas which are more contentious, the analysis confirms Sanguineti's view that Ash and Ham share an antigrafo, and that Ham is not to be thought of as descending from Ash, as it appears to do in Petrocchi's stemma. If the relationship had been one of direct descent one would have expected the A-H section of the phylogram to be configured much more like the relevant parts (E-R; L-Q) of the Monarchia diagram shown above.

LauSC

Sanguineti's original view of LauSC as constituting a separate branch of the stemma (and thus constituting $50 \%$ of $\alpha$ and $25 \%$ of the stemma as a whole) is shown by the computer analysis to be untenable, whereas his revised view of the position of LauSC as a collaterale of MT is confirmed. It is perhaps worth

[^48]emphasising the value of the methodology which allows us to sift out the layers of readings in LauSC, and thus enables us to test claims about LauSC which just describing it as an editio variorum does not. The computer analysis, using the VBase facility, can also test the disputed issue of whether the scriptura inferior of LauSC is itself contaminated, as some scholars maintain; ${ }^{98}$ the views of Veglia and Inglese cited at note 31 are fully justified in the light of the results of our analysis, which shows that Villani's original text drew equally on Petrocchi's $a$ and $c$ branches, but also has some variants shared only with Urb and others shared only with Co (for a full account see VI. The Phylogenetic ANALYSIS: The scriptio prior of LauSC).

The computer analysis cannot resolve the dispute between Sanguineti and Petrocchi on the direction of influence between LauSC (or more accurately its antigrafo) and Chig (LauSC>Chig? or Chig>LauSC?), since Chig and the other Boccaccio copies fall outside the scope of this project. It can, however, show (again using VBase) that the corrections to Filippo Villani's original text made by the revising hand (LauSC-c2) are themselves contaminated, being derived from a manuscript belonging to Petrocchi's $c$ branch and from a manuscript very close to Urb. See VI: The Phylogenetic Analysis: Length of Branches and the L 2 corrections for a full account.

Rb and Urb

The most significant finding of the project is without doubt the clarification of the position of Rb : Rb is shown unequivocally to be a collaterale of Urb, and not a member of $\alpha$ as Sanguineti maintains. This inevitably has important knockon effects for the restitutio textus, since the isolation of Urb as representative of $\beta$ is both the theoretical justification and the practical starting-point of Sanguineti's editorial practice. It also seems a particularly important result in the

[^49]light of Trovato's claim that Sanguineti's re-allocation of Rb from $\beta$ to $\alpha$ has been generally accepted by scholars. ${ }^{99}$
ii. The archetype.

This notoriously difficult and delicate area of investigation has been recognised as problematic since the appearance of the $E N$ in 1966-67. ${ }^{100}$ The issue has been much debated in recent scholarly contributions, with positions polarised between those who question whether it is even meaningful to talk about an archetype for the poem and those who continue to supply lists of archetype errors aimed at demonstrating its existence. Thus on the one hand Veglia insists on the inadvisability of thinking in terms of a traditional archetype for a text released to the public in sections rather than as a complete and finished entity, ${ }^{101}$ while Ciociola talks in terms of two 'subarchetipi (o meglio archetipi, perché non è dimostrata la loro parentela)'. ${ }^{102}$ On the other hand scholars continue to offer lists of variants which might be considered errors characterising the whole extant tradition: to mention contributions of particular weight and import, Lanza's edition of the poem claims there are 23 archetype errors; ${ }^{103}$ Inglese offers a list whose starting-point is errors common to Urb and Triv which, when not polygenetic, reflect 'corruttele anteriori alla separazione tra $\alpha$ e $\beta$ (archetipo $\omega)$ ); ${ }^{104}$ while Trovato reconfigures the problem in the light of his acceptance of

[^50]Sanguineti's (inadmissable) claim that Rb is an $\alpha$ manuscript by arguing that shared errors in Rb and Urb are archetype errors corrected conjecturally in $\alpha .{ }^{105}$

Our methodology and results connect in interesting and illuminating ways with this problem, without being able to offer any kind of solution. With a phylogram showing manuscript relationships, there is no starting point: the genealogical tree is not rooted. But looking at the phylogram for the Sanguineti seven manuscripts of the Commedia in its various versions - with and without the text of the printed editions, for example - we can see that Petrocchi's text (as a reconstruction of the supposed original) makes sense as a root for the tradition, whereas Sanguineti's does not. Of course if we imagine the root at the juncture of $R$ and $U$, then we get a three-branch tree with $R$ and $U$ as two of its branches, and all of the remaining manuscripts as the third branch. This is intriguingly close (though by no means identical) to Trovato's reworking of Sanguineti's stemma in Stemmi, where Trovato's new configuration offers an alternative model for arguing that good readings shared by R and U enjoy majority status.
iii. The two-branched stemma.

All recent scholarly accounts of the textual tradition of the Commedia acknowledge that the surviving manuscripts of the poem fall into two groups, broadly characterised as the northern tradition and the Tuscan tradition. Many scholars have also concluded that the tradition is best represented by a twobranched stemma - the point is closely related to the previous point about whether or not there is an archetype. This prevailing view on the bipartizione of the stemma has also been questioned by Veglia, who argues that this is a preconception not supported by the evidence.

One possible way of throwing light on the question would be to do for ms. Landiano what this project has done for LauSC: namely, a transcription which

[^51]sorts the original readings from the erasures and rewritings and allows the computer programme to analyse the scriptura inferior in relation to the other manuscripts. The position of La in the stemma is crucial for Petrocchi's view of the tradition (and a major area of disagreement between Petrocchi and Sanguineti). ${ }^{106}$ The results of such an analysis could have an important bearing on the question of the $\alpha / \beta$ division. Another manuscript of which it would be highly desirable to prepare a computerised transcription and analysis is Mad, a $\beta$ manuscript for Petrocchi but an $\alpha$ manuscript for Sanguineti. See also VI: Phylogenetic Analysis: In Search of $\alpha$.
iv. Contamination.

An unexpected and very significant finding of the digital Commedia project is the consistency of the results of the analysis across the whole poem for these mostly very early manuscripts. This seems especially significant in the light of our knowledge both of the way in which the poem was released to the public (with cantiche and perhaps even groups of cantos released separately) and of the copying practices of scribes (with recent expert codicological analysis confirming Moore's findings about 'intermixture of texts'). ${ }^{107}$ This is a very striking result, and runs counter to what we might have expected to find. What we would expect with a contaminated tradition involving scribal change of exemplar is a series of different phylograms, with manuscripts shifting position at different points in the text. ${ }^{108}$ As noted, the trees for Inferno and Purgatorio are identical to those for the poem as a whole; only Paradiso has a slight modification in the

[^52]configuration, but not one which removes Rb from its place as a $\beta$ manuscript. ${ }^{109}$ Given the consistency of these results, it would be possible to argue that the problem of contamination is less grave than hitherto thought.

Finally it seems important to emphasise that the conclusions we reached are not those we expected to reach when we started out on the digital Commedia project. In the first flush of enthusiasm as the project was set up, we accepted Sanguineti's proof of his stemma at face value, as many of his early reviewers did, and we assumed that the computer analysis would provide confirmation of his results. That proved to be far from the case: the results turned out to be more interesting and complex than we could have imagined, as the preceding pages demonstrate.

## The DNA of the Commedia

For the benefit of textual scholars who may not be au fait with molecular biology and the terminology of genes and DNA, I will attempt here to offer a fuller account of the ways in which identical forces operate in the two fields of genetic replication (the mechanism by which life is created through successive generations) and scribal copying (the mechanism by which texts were disseminated before the invention of printing), and show why computer programmes devised to analyse data in the first lend themselves to the same task in the second.

DNA and a literary text both consist of linear information conveyed by an alphabet: in this structural sense they are identical rather than merely analogous. DNA is text, a sequence or string of information conveyed by what is for all intents and purposes an alphabet of four letters; that information string is replicated (copied) in procreation. A gene is $a$ text (a section of the DNA sequence); it can be read by a molecular biologist and conveys meaning;

[^53]substitutions or omissions can leave the meaning unchanged, or alter the meaning of the text, or render it meaningless. (See below.)

The textual, linear nature of the DNA message is of course independent of the notational system. It happens that the letters of the DNA alphabet used by geneticists to label the four different nucleotides, the units of which the DNA string is constructed, are by convention letters from the Roman alphabet, but any form of notation (symbols, even colours) would serve equally well to convey the informational content. There is a true homology here which operates at two levels, between: a) the verbal text (of the Commedia in this case) and the DNA text (written in bases on a molecule); and b) between DNA replication and scribal copying, i.e. descent with variation in both cases. The crucial structural element is linearity, and sequence is what conveys the meaning.

Genes are texts composed of words (technically, codons). Each word or codon is three letters long, each letter representing a nucleotide: this is what is known as the triplet genetic code. (It would surely have delighted Dante, had he known it, that life itself is informed by a pattern of three-in-oneness, just as the poem he wrote and the metrical scheme he devised to write it embody that same pattern of three-in-one, which itself reflects the triune god in whose image he believed the world to have been created.) Each word in the genetic text can have (does have) spelling variants which do not affect meaning.

The words (or codons, or triplets) which make up a gene are composed of any permutation or combination of three of the four letters A C G and T. These letters designate the nucleotides: Adenine, Cytosine, Guanine, Thymine. Thus, for example, we might have a gene which reads ATG.AAT.TCG.GGC......

Codons specify amino acids, the building blocks of proteins. Thus the nucleotide triplet TTA codes for leucine; the triplet CAA codes for histidine; the triplet GGG codes for glycine, and so on. The order of the amino acids in the protein specify its structure and thereby its function. Thus the order (sequence) of
codons in the gene is translated into the specific function of a protein - the 'meaning' of the gene text. A chromosome is a string of genes - a library of books, say 1000 books - with each gene a text in the sequence.

Genetic replication (the copying of genes) is subject to mutation, i.e. genetic change. Change can occur within any one or more of the sequences of three letters which make up the codons of which the gene is formed.

Some mutations are said to be 'silent'. In these cases there is a change in the 'spelling' of the codon (so CCT might become CCC or CCA) but there is no change in the protein coded for, i.e. no change in the significance of the codon. The sense of the gene remains the same. This is the exact equivalent of a spelling or formal variant in a verbal text: a small change with no effect on meaning (so a scribe might write abysso instead of abisso, with no change in the sense of the word or the phrase which contains it; he might write de lo or dello, again with no change in meaning). So in both cases - DNA and literary text - this kind of copying error makes no change to meaning. While the geneticist talks of silent variations, the textual scholar talks of spelling and formal variants.

More significant mutations come in various guises. There are mutations which make sense but whose sense is altered from the original meaning, though perhaps only slightly; and there are mutations which substantially alter the sense of the ensuing text. The text may still make sense but mean something quite different; but equally it may not make any sense at all, the change turning the sense to nonsense. These mutations may be substitutions (now with significant consequences); or they may be omissions or insertions.

We can illustrate these various kinds and degrees of mutation with textual examples involving substitution: a scribe might substitute the word viso for volto: the word fits grammatically (and in the case of a poetic text, metrically) and there is no change in meaning. This is a variante di lettura, a variant reading: neither variant is self-evidently right or wrong. Or the scribe might substitute
the word corpo for volto: the word still fits grammatically (and metrically), but the meaning is altered: it may make sense in context, but equally it may no longer make sense. Or again he might substitute voglio for volto: the substitution of a verb for a noun no longer fits grammatically and the phrase will almost certainly no longer make any kind of sense.

There are some differences between DNA text and verbal text, but they are not relevant when thinking about the replication process. Large portions of the DNA text are 'junk' (insignificant in protein coding terms): verbal texts have no equivalent for 'junk'. With DNA there is a reading frame: the geneticist must start reading at the right point so that the sequence of triplets is meaningful. If one starts reading at the wrong point, there is no significant pattern of codons, and one fails to identify or pick out the gene (to discover a gene is precisely to identify a meaningful stretch of DNA, to read the text correctly). There are therefore DNA sequences that have framing, structural and regulatory significance (compare covers, frontispiece, blurb, spine, index of a book), but no sense implications as regards the main text.

With the addition or omission of nucleotides in a DNA sequence, the result is likely to be nonsense simply because the reading frame is lost. With verbal texts the effects of omissions and additions will depend on various factors: on size, on context, on whether the structure remains grammatically intact, as it will for example if the lost word is an adverb, but probably will not if it is a verb. But often the result will be nonsense, and an editor is alerted to the possibility of omission precisely because the text at a given point fails to yield a satisfactory sense.

The two processes we are considering - genetic replication effected by biological systems and scribal copying effected by human agency - have inherent sources of error which are strictly analogous, but which are less intuitively apparent than the obvious parallels outlined up to this point.
i. DNA has inherent slippage or, more precisely, replicability, i.e. there are inherent qualities in the text that interfere with accurate transmission. This is equivalent to eyeskip (saut du même au même, salto per omoioteleuto) in a verbal text; but whereas eyeskip usually generates an omission, as the eye typically slides from one word to the same word a line or two below, in genetic replication the slippage is often in the opposite direction (back up the page, as it were), with replication rather than omission being the outcome. (This is not unknown in textual transmission, but much rarer: in the textual tradition of Dante's Monarchia, for example, which survives in twenty manuscripts, there are just one or two cases of replication caused by eyeskip but hundreds of cases of omission.) Repeating elements in the DNA become more numerous with time, and long repetitive sequences are common in 'junk'.
ii. There can be a particular stretch of DNA which is infective and mobile. In text terms, the equivalent phenomenon is resonance and its effect on scribal memory. A scribe remembers a resonant phrase, and introduces it in place of a somewhat similar but not identical phrase elsewhere in the text. Scribal memory creates a transposable element and moves text about, as when various copyists of the Commedia at Inf. vii 11 replace the phrase vuolsi ne l'alto là with vuolsi cosi colà famously enunciated on two earlier occasions in the poem (Inf. iii 95 and Inf. v 23).
iii. There is a DNA equivalent of contamination (the scourge of textual editors) in the form of lateral gene transfer: bits of text are moved by viruses or by other agents between organisms which are not closely related enough to have that information in common by heredity. This is exactly what happens when variants are introduced by lateral transmission in a contaminated manuscript tradition.
iv. Genetic recombination creates a hybrid text in much the same way as a copyist switching exemplar halfway through the transcription process creates a hybrid text. Indeed the creation of a new living creature is the creation of a
hybrid text (although clearly in an infinitely more intricate and complicated way than the simple switch of exemplar for a scribe).

A final point. Historically, evolutionary biologists have had a problem with convergence (when two species independently develop the same morphology through genetic mutation). Textual scholars are dealing with a similar phenomenon when they are confronted with polygenetic error (also known as convergent error): a change in the text which may arise independently in unrelated copies and which cannot therefore be used as proof of descent from a common ancestor. Although convergence operates for biologists at the level of gross morphology, and for textual scholars at the level of text, the parallel is striking. The 'spectre of convergence' is as problematic for evolutionary biologists as contamination is for textual critics.

Genetic replication and scribal transmission are dissimilar only in the value placed on their outcomes or end-products. In the living world genetic replication is the engine of evolution, which is often thought of in terms of progress, and is at the very least morally neutral: it does not involve value judgments. Scribal copying over many generations commonly involves degradation and loss of quality as the author's original is eroded in the course of transmission. The main drive of the textual scholar is recovery: to move backwards to the lost original and to reconstruct the text from which the later imperfect copies with their various mutations descend. This is the only significant difference between the two processes, and this difference does not involve the mechanism of change or possible ways of analysing it.

If we look at the history of phylogenetics and cladistics, the discipline was transformed by the discovery of the structure of DNA in 1953, and has continued to be transformed by advances in the understanding of genetics since that time. Previously, living creatures were assigned to phyla based on gross morphology: biologists have always had a wealth of gross morphological features to examine and analyse. Dragon-flies, birds and bats all have wings: do they have
a common winged ancestor? (The answer of course is no: this is a classic example of convergent evolution.) Traditionally biologists looked at the meta-level rather than at the text itself, because the text was not available. Now that DNA analysis is possible, they are using the textual level to check and verify hypotheses elaborated on the basis of gross morphological features. There have been striking case-histories of phylogenetic reassignment after long-disputed history based on gross morphology.

Take the case of the marsupial wolf (thylacine), extinct in Australia for some time. Zoologists trying to classify it from morphology argued over whether it was more closely related to (i) extinct carnivorous marsupials in South America that came to Australia when the two continents were geographically connected, or (ii) carnivorous marsupials in Australia (such as the Tasmanian Devil) which happened to evolve to look rather like the South American ones. (The thylacine and the South American borhyaenids uniquely share certain dental and pelvic traits.) Eventually, DNA was extracted from museum specimens and sequence data obtained: this showed that the correct explanation was the second one. ${ }^{110}$

This is precisely the kind of problem faced by textual scholars analysing the transmission history of the Commedia. In the digital Commedia project we have tackled a specific instance of disagreement about the assigning of an individual to a particular branch of a tree. We have two rival hypotheses about the relationship of $\mathrm{ms} . \mathrm{Rb}$ to other early surviving manuscripts. Petrocchi and Sanguineti elaborated their respective hypotheses on the basis of their judgment of the significance of certain features in surviving copies of the poem, Petrocchi concluding that ms. Rb belongs in the $\beta$ family while Sanguineti believes it to be a member of the $\alpha$ family. We have noted how small the number of readings is on which Sanguineti bases his stemmatic hypothesis: basing a cladistic

[^54]hypothesis on a single variant or small group of variants is always problematic, whether in biology or in textual studies. Depending on the choice of features highlighted, and the significance attached to them, persuasive arguments can be made for very different hypotheses. This is quintessentially an exercise of iudicium, of fallible human judgment. The new genetic science forgets about morphological features in biology and just takes the DNA text, with sometimes surprising but always conclusive results.

The preceding discussion has established a parallel between the two copying systems of genetic replication and manuscript transmission, and pointed to the very significant ways in which descent with variation underlies these two apparently unrelated areas of scientific investigation. It has been shown conclusively in biology over the last few decades that the best (most constructive) approach is the one which considers all the data. Until the possibility of DNA analysis became a reality, phylogenetic trees were tugged about for years as some people argued that certain features were of decisive importance, only to be contradicted by others who highlighted other features and made an equally persuasive case. It has been found that to get the right answer one needs to plug in all the data. Any form of selection or weighting of the data involves the operation of subjective human judgment, meaning different people will produce different results, and the disagreement between them will be unresolvable.

For textual scholars to use the programmes designed by evolutionary biologists is to piggy-back on a huge body of established research, and apply it in a new area. It is to be hoped that more textual scholars will feel able to adopt this new approach in the coming years, not in place of tried and tested philological methods which remain valid, indeed indispensable, in so many areas involved in the production of critical editions of medieval texts, but as a supplementary methodology able to resolve disputes about manuscript relationships where traditional means have proved unable to do so.

## II. Witness Descriptions

Witness descriptions: Ash
Name and Location
Florence, Biblioteca Medicea Laurenziana

Ms. Ashburnham 828 (Roddewig n. 170)
Contents
The Commedia:

- Inferno ff. 1r-34r (f. 34v is blank)
- Purgatorio ff. 35r-68v
- Paradiso ff. 69r-102r (f. 102v is blank)
- Jacopo di Dante's Capitolo ff. 103r - 104r

Click on the folio numbers to see images of Jacopo's Capitolo 103r, 103v (another version: 103 v alternative), 104 r (another version: 104 r alternative); and 104v

Binding
Old brown leather binding; on the spine DANTE 1335; one paper guard page at the beginning, another at the end. Click on the links to see images of the inside front cover and front guard page. A detailed account is given by Antonella Taiti in Boschi Rotiroti-Savino Nel cantiere 311.

## Materials

Parchment, sometimes of rather poor quality, the hair side of the pages in particular being at times dark and discoloured, as here at Purg. vii 91-117:

though other pages are very clean and clear, as at Par. ii 70-141 (f. 70v):

|  | (6) irtu गuluerf efferguengon fiuth Disemarm or formalizpurfinecthme fegutaneno atua nģom oiftrett- <br> ©TA nove feram fufle olqueflowno Gglon the tu oimumóo oltre mpote fuza ovfua matrena fipigune. <br> (1E fo planct firome comprex lognaflo elmagro unco icifl tucfo neffuo uolume chmimetble chite <br> (Belpumo forfe foos mimifeto nello echipit telfole putafiniere tolume come malto varwingetho. <br>  telaltov-नegh aum choblaltro calf Glififian fia lotno pmere- <br> TB cghe cte quefto mion nöapufi eff gutene untimine monte loflo nturió pú pukarnō tafi <br> (12 indralerm mggó firfontecoficome coloz toma puetio Logualourtroaffe pionbynafionte <br>  unloaggio púdje nalte patt <br> (12) pefflatinto pu aretm. <br> (1) aquefh ftamia puot tehtrantí erpertenca figamat lapour che ff fuol fonte arruin ovupfarte <br> (12 mfpecth pzentem cioue nmoun पurevm moto clatro puirnmofo tambo lipam stoctr tuvi numus. <br> (L2ublto adoff as the topol tofto tifta unlume chetur fpectra amerima ctormanter natucté пре offo. <br>  lauff pii lonama hucrat comeguten digtulmente $\begin{aligned} \text { fiplenar. }\end{aligned}$ | (i5) rome míolpe teilicthaterian tella neue rimam nutol fibsicto ceal coloz 7 anl ficgro paimaz. <br> (TW of rmano te nellhntellectio uogho mformat ohace fin uate dietr temolera neifio afpecto. <br> (1Dentro dalact tell diuma pax flita uncopo mella thm urtuet Tefinture contente fice- <br> (1) ond feguente thatante uevute quel eff mite ponife cfena alluitiftacte ? milhugtenure. <br> (5) lialtr gito yume Diffirnee ledifhem the tentro onfe amno <br> (1) orfumigon allos fin tor femertueftomam Tel mono wf ix unino come tur uedi omal ougato meand the oríu peenton 7 midoto famo. <br> (F2-gyarma benc ame firome uat peffolaco aluere che offin fiche por fappr fol trane- loguto. <br> (1-omote clla mututefanngir comeral fabo later rimattillo nibean motro guen chefpm.- <br> (IElaed cur tant lum fanmo bello rella menter profonea chdim uolue prente imationfaffene figeclio. <br> (IIS come lalma tentro auofor polue ponfferent mentom $\rightarrow$ gformate adueré potompe finfolute. <br> (IL) ofi lantethgence fia lammar multuphathan pelle frulle fpicta <br>  <br> (5) 1rtu गừn fa múf legn colpetiofo coupo dritiona netpual futome won allur fileg. |
| :---: | :---: | :---: |

The last two pages of the codex, including the one which contains the date ( 104 r , see below), have been damaged by water.

Page Size
$320 \mathrm{~mm} \times 230 \mathrm{~mm}$ approximately

## Format

Two columns, not always perfectly aligned; indeed the copyist seems at times to have difficulty writing in straight lines:


Inf. v 76-81 (f. 5v)
Twelve terzine per column. A detailed account of the mise en page is given in Pomaro Appunti 317.

Collation
$1-8^{12} 12,9^{8}$
Catchwords at the end of every gathering, as seen here:

(f. 12v)

The folios are numbered in the top right-hand corner in a combination of old and modern hands, in ink and pencil, as follows: 1-10 in ink in an old hand in Arabic numerals; xi-xiii in Roman numerals in ink in an old hand; 14-103 in pencil in a modern hand; 104 in a modern hand in ink.

Hands
A single hand (the $\alpha$ hand) copies the text of the Commedia in littera textualis ('semplificata'); a different hand (the $\beta$ hand) copies Jacopo di Dante's Capitolo, also in littera textualis ('semplificata'). Pomaro Appunti 322-24 analyses the $\alpha$
hand in detail and notes: 'il copista delle tre cantiche è indubbiamente lo stesso, ma parrebbe intercorrere un certo intervallo di tempo tra la stesura del 'martoriato' Inferno e quella delle altre due cantiche.' Hand $\beta$ adds some rubrics to the Commedia and systematically corrects the text of the poem, as here:


Purg. vii 130-36 (f. 41v)
where lines 132-33 are in hand $\beta$. The two hands have different spelling habits, analysed by Franceschini Stratigrafia 285. The frequent use of etymological or pseudo-etymological spellings in $\alpha$, reflected in forms like fregdo and cictà , and the learned (or pseudo-learned) spellings of Greek names suggest the Commedia scribe belonged to an ambiente scolastico, more likely religious than lay; the same conclusion is reached by Pomaro Appunti on the basis of her palaeographic analysis. The Latin glosses (with some vernacular elements) found especially in Purgatorio would confirm this if they are by the $\alpha$ hand, as Pomaro believes, but the matter is disputed. (Taiti in Boschi Rotiroti-Savino Nel cantiere 310 considers all the marginal and interlinear interventions to be late '300 and ' $400 .{ }^{111}$ ) Other hands which cannot be identified also make small corrections to the text, including the addition of three omitted lines at Inf. xix 111-113.

[^55]
## Linguistic character

Western Tuscan, specifically Pisan, most strikingly apparent in forms like lodarebbe, spendare, serebbe, cului, segondo, nosso, mostato, miee, du, siemo, viddi, ogosto. Franceschini Stratigrafia 305 offers a minutely detailed analysis, summarising the distinguishing linguistic features of the two hands thus: 'Il copista della Commedia, dotato di una certa cultura, si rivela come un pisano (forse con qualche influenza volterrana) che cerca di esercitare sui tratti più marcatamente tosco-occidentali il massimo controllo. Al contrario il copista del Capitolo, di altro ambiente culturale, come suggeriscono anche le sue scelte grafiche, conferisce al testo una veste francamente tosco-occidentale (mentre ulteriori interventi di revisione del poema vanno in senso fiorentinizzante ... )'. Franceschini notes also some Northern linguistic features which a Pisan scribe would not have introduced into the text and which he must have inherited from his exemplar. The distribution of the varying forms sança-sensca-sensa 'fa pensare che il copista, dopo aver cercato di seguire il tipo fiorentino, probabilmente presente nel suo modello, abbia ceduto al tipo tosco-occidentale ... per riprendere però, probabilmente dopo un'interruzione verso la metà del Purgatorio, di nuovo col tipo fiorentino' (290). Franceschini's analysis of the linguistic character of the Capitolo concludes that it has 'una facies sicuramente pisana o lucchese e forse piuttosto pisana che lucchese' (284).

We can note that characteristic Western Tuscan forms are preserved even in rhyme, as at Inf. xxix 56-58-60: iustiça-tristiça-maliça and Par. xxxi 101-103105: graça-croaça-saça.

## Illumination

Decorated capital letters at the beginning of each cantica, those for Purgatorio and Paradiso much more technically accomplished than the rather clumsy initial $N$ of Inferno:


Smaller decorated initials in red and blue at the beginning of each canto; alternating red and blue paraph markers at the beginning of each terzina.

## Rubrics

The space for rubrics was initially left blank, and remains blank for much of the text, apart from the opening cantos of Inferno (i-vi), where rubrics were added by the $\beta$ hand, usually in the short Latin form, as here:


Inf. ii Initial Rubric
The same hand adds rubrics at $I n f$. xiv, xv, xvii and xxvi. Where there are no rubrics, the canto number is visible, often though not always twice, i.e. in Roman and Arabic numerals, with the Roman numeral above or alongside the Arabic one, as at Inf. vii 1 (f. 6v):

and Inf. viii 1 (f. 7 v ):


Pomaro Appunti offers a detailed account of the decorative dimension of the codex and its attribution to various hands.

## Date

The manuscript - known for this reason as 'l'Antichissimo' - bears the words dogosto MCCCXXXV (August 1335) in red alongside the third line on f. 104r (another version: 104 r alternative).

The form ogosto for agosto, found also at Purg. v 39, is the normal Western Tuscan form (Castellani Grammatica 292). ${ }^{112}$ If, as seems likely, this date is in stile pisano (whereby the year begins on the $25^{\text {th }}$ March preceding the usual new year), the actual date recorded here is August 1334. If this date is accurate, and not simply copied passively from an antigrafo, then Ash is older than the oldest securely-dated surviving manuscript, the Landiano (La) of 1336.

However the reliability of this date has often been called into question, most recently by Savino L'autografo virtuale 7, who dates the $\alpha$ hand as mid '300, as does Boschi Rotiroti Codicologia 17-18. ${ }^{113}$ Petrocchi Introduzione 59 accepted the date as authentic ${ }^{114}$, and it has recently been defended on palaeographic grounds by Pomaro Appunti. ${ }^{115}$ Since the date follows the Capitolo, and is in the $\beta$ hand, the dating of the Commedia in Pomaro's view will be before this, arguably in the early 1330s.

[^56]
## Provenance

The codex came to the Biblioteca Medicea Laurenziana as part of the Ashburnham collection acquired by the Italian government in the late nineteenth century. Previously it had belonged to Guglielmo Libri, and before that to Giovan Lorenzo Pucci. See Pomaro Appunti 319-21 for a full account.

## Select Bibliography

Petrocchi Introduzione 59-60; Roddewig Commedia-Handschriften 73; Castellani Dialetti 287-348; Boschi Rotiroti Codicologia 17-18, 120, 127; Taiti Asbburnbam 828 in Boschi Rotiroti-Savino Nel cantiere 309-14; Savino L'autografo virtuale 1099-1127; Franceschini Stratigrafia; Pomaro Appunti 317-30; Romanini Manoscritti 49-60. Further bibliography relating to earlier studies can be found in Roddewig Commedia-Handscbriften and Pomaro Appunti.

Witness descriptions: Ham

## Name and Location

Berlin, Staatsbibliothek zu Berlin Preußischer Kulturbesitz
Ms. Hamilton 203 (Roddewig n. 15)
Contents
The Commedia:

- Inferno ff. 1r-32v
- Purgatorio ff. 33r-64v
- ff. 65r-65v blank
- Paradiso ff. 66r-98v
- ff. 99r - 99v blank
- Jacopo di Dante's Capitolo ff. 100r-101r. Click on the folio numbers to see images of the Capitolo 100r, 100v, 101r.
- f. 101v contains an index: the number and first line of each canto are set out in three columns (Inf. 19 was inadvertently omitted and added in the left hand margin, so there are three columns of 33 lines). Click on the folio number 101v to see this folio.

The text of the poem is complete but there are occasional missing and added lines (see Ham Transcription Notes for a list). Vernacular glosses fill the margins of folios 1r-2r. These glosses are transcribed by Auerbach Die Randglossen; their linguistic character is analysed by Franceschini $U n$ codice, who also discusses the content of the glosses in relation to the early commentary tradition, and rejects the attribution to Bosone da Gubbio advanced by Roddewig CommediaHandschriften.

## Binding

Modern binding, wooden panels and leather spine; shelf mark Ms Ham 203 on a red leather patch. The remains of the original binding (the spine only: brown leather with gold tooling plus two red leather patches with shelf mark and description) are glued to the inside of the front cover. Two guard pages at the front, one vellum, the other paper; the same in reverse at the end, one paper and one vellum. A label on the inside of the back cover records the date - 1.11.72 - when the manuscript was rebound. Click on the links to see these images: front cover, inside front cover, back cover, inside back cover, guard page parchment inside front cover recto, guard page parchment inside front cover verso, guard page paper inside front cover recto, guard page paper inside front cover verso, guard page paper inside back cover recto, guard page paper inside back cover verso, guard page parchment inside back cover recto, guard page parchment inside back cover verso.

## Materials

Parchment, of rather coarse quality; the pages are almost never completely flat and are quite dark in colour in places, as in the bottom right-hand corner of f . 3 r :

```
    Nelke tencbre cteme ioaloo engrelo.
    ft tu dy 人ि` coftrinmma uma.
        patern sacorefl de fon mooth.
```



```
    Z Ime paltra un palma pox.
        Sereal apvaggra nö q parpaf(aze.
        pro lewuc legmoi conuende tipert.
    f loucs allun cmon nò nonutume-
        GuolR cofi mola mowe fipucte
    Ciocteffutuole apuu nö Dommimare
    Q uma five chere telmofe gore-
        glmizner allalunzen palux.
        Clyutoene allocith auca di füme reve.
    Q) a quille amme dx ctmo luff onutit
        camgar colose aribatteno iventi.
        Baco denteffe leparole ruic.
    B inflimauano ioro g ler parit.
        lumama fxne cllugogo diexe dfome.
        Bulor fencén quilor náfamert.
Parfintrafer tucte quapte iffme.
        fore mangeito alla nua milungra.
        Chatenix aufanlyo dx rie it teme.
    Caron sumowo conecty, or hragaa.
    lowo atemnio rr tucte lerooghic
```

Inf. iii 87-110

## Page Size

$355 \mathrm{~mm} \times 256 \mathrm{~mm}$

## Format

Two columns of text, normally 13 terzine, i.e. 39 lines, per column: in the early cantos the scribe does not mind splitting the terzina across a column break or a page break, but later he tends to avoid doing so. Generous margins, especially the lower margin; as noted, a vernacular commentary fills this space on ff. 1 r 2 r , stopping at Inf. ii 52.

## Collation

$1-8^{8}$; a single folio; $9-12^{8} ; 13^{4}$

Old numbering is visible in ink in the extreme top right hand corner of the page; slightly below this there is larger modern numbering in pencil:

(f. 64r)

The numbers run parallel until 64, then blank f. 65 has modern numbering only; the old numbering continues on the next folio from 65 on while the modern numbering is now from 66 on (so from this point on the old and new numbering are out of kilter by one).

(f. 69r)

We follow the modern numbering for the screen images. The blank f. 65 which comes between the end of Purgatorio and the beginning of Paradiso (its hair side too discoloured to write on and its flesh side also marked and stained) is an extra first page attached to the ninth gathering but not part of it, which seems to have been added at the time of the original binding. Click on the folio numbers 65 r 65 v to see these folios.

Gatherings are numbered 1-13 in pencil in the top left hand corner in a modern hand (the numbers presumably added at the time the manuscript was rebound). There are catchwords in the centre of the lower margin at the very bottom of the page (pace Boschi Rotiroti): for example, at the base of fol. 16v:

## Tु० m

## Hands

Littera textualis ('semplificata'). According to a note on f .98 v appended after the explicit in a different hand the copyist is Tommaso, son of a merchant from Lucca, who copied the poem in the first six months of 1347 in Pisa, and who died of the plague aged 19 a year later:
iste liber scrissit tomazus olim filius petri benecti ciui et mercatori lucano anno natiuitatis domini MCCCXLVII in primis Sex mensibus de dicto anno in ciuitate pisana in contrăta dicta carraia di san gilio

Et tomasius suprascriptus obit anno Mortalitatis MCCCXLVIII de mense Julii in ciuitate lucana et sepultus fuis in eclezia sancti agustini

Cuius anima in pace Requiescat Erat Iuuenis de annis xviiiio multum discretum et sapientem


This single attribution, accepted by Petrocchi Introduzione 9 and more recently by Boschi Rotiroti Codicologia 72, 101 and 109 n. 8, has been called into question. Roddewig Commedia-Handschriften 9 sees two hands, the second hand operating from f. 53v onwards; Armando Petrucci thinks there may be more than two copyists for the Commedia, while the hand which does the glosses on the opening pages is a different one again, though of the same date. ${ }^{116}$ Occasional discrepancies in the physical layout of the text might be thought to support the idea that perhaps more than one copyist is involved. Very strikingly for a transcriber who has worked methodically through the text, every line finishes

[^57]with a punto from the beginning of the text until f .48 v (the end of a gathering), as seen clearly here:


Purg. xviii 1-9 (f. 48v)

From this point on they are not used, but instead are replaced either by a faint virgula suspensiva (/) or occasionally by nothing at all.


Purg. xviii 10-18 (f. 49r)

There is no punctuation in this manuscript apart from these metrical markers at the end of lines, and the use of the punto mid-line to separate letters in Paradiso xviii at lines 78, 94 and 98:


We have not included these punti in the transcription. On the Benetti family from Lucca and their connections with Pisa, see Franceschini Un codice 133-34.

## Linguistic character

Western Tuscan, as reflected in forms like magressa, bellessa, quaçi, corteçe, pogho, autro, moveanno, areben, viddi, paraula, servaggia; see Castellani Dialetti toscani occidentali, in his Grammatica 287-348. Franceschini Un codice gives a detailed analysis of the linguistic features of the codex, illustrating 'aspetti salienti del pisano e del lucchese antichi', with ample bibliography. A comparison of the language of the text of the poem in the opening pages compared with the language of the glosses in those same pages reveals that: 'nelle prime due carte di Ham il testo della Commedia e le relative glosse, se pure attribuibili a mani distinte, rinviano ad una medesima situazione linguistica tosco-occidentale, di orientamento prevalentemente lucchese ma con significativi pisanismi’ (140). An analysis of these characteristics across the three cantiche reveals that the Western Tuscan character of the language becomes slightly more attenuated as the poem continues: 'Si fa avanti cioè la tendenza a un maggior rispetto dei caratteri originari del testo dantesco, o comunque della norma fiorentina, ed i tratti tosco-occidentali diventano più rari.' Franceschini concludes: 'il codice nel suo complesso risulta scritto da lucchesi aperti variabilmente ad influssi pisani' (142). The linguistic analysis of the codex is further developed in Franceschini Stratigrafia, where it is compared with ms. Ash, also copied in Western Tuscany. As with Ash, characteristic Western Tuscan forms are preserved even in rhyme, as at Inf. i 50-52-54: magressa-gravessa-altessa. Franceschini points out that even
the Latin note which names the copyist, cited above, reflects these linguistic characteristics in the forms tomazus, eclezia and agustini.

Illumination
The initials of each cantica contain a miniature:


## Rubrics

Rubrics (substantially type $a$ as in Petrocchi $E N$ ) are in red, initial letters of cantos are alternately blue with red decoration and red with blue decoration (occasionally the sequence is broken and there are two consecutive red or blue initials); the capital letter may be $3,4,5,6$ or even 8 (Par. xxxi) lines deep. The initial letter of each terzina is filled in yellow. Under or alongside the rubrics the canto number is often visible in tiny figures in the ink of the text. These numbers have not been transcribed. The guide letter for the rubricator is also often visible and has not been transcribed. Both are visible, for example, at the opening of Inf. xv:


Here the guide letter $o$ and the number 15 are visible.

The rubrics were added after the text and the ornamental capitals, as is seen clearly at Purg. xxxii, where insufficient space was left and the end of the rubric is squeezed into the margin:


Purg. xxxii (rubric and lines 1-6, f. 62v)

At Par. xvii the rubricator avoids overwriting the decorative flourish on the capital $Q$ with which the canto begins, just as the capital $Q$ itself avoids overwriting the $p$ of padri in line 3:


Par. xvii (rubric and lines 1-6, f. 81v)

There is an even more striking case of this last phenomenon at Inf. vii where the $D$ of Disse is inside the vertical stroke of the capital $P$ and the rubricator has carefully avoided colouring over it:


Inf. vii (rubric and lines 1-6)

## Date

As noted under Hands, the manuscript was copied in 1347.

## Provenance

The codex formed part of the collection of the Duke of Hamilton which was acquired by the Preußischer Staatsbibliothek in Berlin in 1882. Its earlier history is summarised by Petrocchi Introduzione 68 and Roddewig CommediaHandschriften 9; its history during and after the second world war and its eventual housing in the new Staatsbibliothek zu Berlin Preußischer Kulturbesitz (along with other Hamilton mss.) is reconstructed by Staccioli Sul Ms. Hamilton 6728-30. A useful summary is given in Franceschini Un codice 132.

## Select Bibliography

Petrocchi Introduzione 68-69; Biadene I manoscritti 326-27; Auerbach Die Randglossen 45-50; Wiese Handschriften 45-46; Roddewig CommediaHandschriften 9-10; Staccioli Sul Ms. Hamilton 67 28-29; Castellani Dialetti 287348; Franceschini Un codice 131-42; Boschi Rotiroti Codicologia; Franceschini Stratigrafia 281-315. Further bibliography relating to earlier studies can be found in Petrocchi Introduzione and Franceschini Un codice and Stratigrafia.

## Witness descriptions: LauSC

## Name and Location

Florence, Biblioteca Medicea Laurenziana

Ms. Plut. 26 sin. 1 (Roddewig n. 92)

Contents
The Commedia:

- Inferno ff. $1 \mathrm{r}-68 \mathrm{v}$
- Purgatorio ff. 69r-134v
- Paradiso ff. 135r - 200v
- a note about the copyist, Filippo Villani f. 201r (f. 201v is blank)
- Jacopo's Capitolo (misattributed in the top right-hand margin to Piero di Dante) ff. 202r - 204r
- Bosone da Gubbio's Capitolo ff. 204v - 206v
- Boccaccio's argomenti in terza rima ff. 207r - 214v

Click on the folio number to see the folios which contain Jacopo's Capitolo: 202r, 202v, 203r, 203v, 204r; Bosone's Capitolo: 204v, 205r, 205v, 206r, 206v; Boccaccio's argomenti: 207r, 207v, 208r, 208v, 209r, 209v, 210r, 210v, 211r, 211v, $212 \mathrm{r}, 212 \mathrm{v}, 213 \mathrm{r}, 213 \mathrm{v}, 214 \mathrm{r}, 214 \mathrm{v}$.

Binding
Wooden boards with brown leather spine; one modern paper guard page at the beginning (A), followed by five old paper guard pages numbered I-V, the first of which has the ms. sigil in pencil (I; II-V are blank), and a sixth guard page of parchment (VI); on the verso (VIv) of this parchment folio is pasted a printed notice about the transfer of the manuscript to the Biblioteca Laurenziana; three old paper guard pages at the end, of which the first contains the note and date
reproduced below under Date, followed by a fourth modern paper guard page (B). On the spine: DANTE. LA DIVINA COMMEDIA.

## Materials

Paper; Pomaro Analisi codicologica 1066-67 describes in detail the griffin water mark, and concludes that it is closest in size and shape, but without being identical, to Briquet's n. 7457 (Savoia, 1401-1403). See also Bertelli La «Commedia» 48 n. 45.

## Page Size

$365 \mathrm{~mm} \times 260 \mathrm{~mm}$

## Format

Each canto occupies two folios or four pages, so a new canto always begins on a recto page. With shorter cantos some blank space remains at the bottom of the fourth page. Twice this space is filled by a brief commentary on the canto in Villani's hand, at Inf. vi (f. 12v) and Inf. xi (f. 22v). Transcriptions of this material can be found in Marchesini Due mss. autografi 387-88. Pomaro Analisi codicologica 1066 aptly notes 'una certa qual scompletezza in un lavoro, preventivato probabilmente in modo più complesso (forse con organici argomenti ad apertura dei canti)'.

## Collation

$1-17^{12}, 18^{10}$

A note at the end of Par. xvii (f. 168v) shows that at some point in its early history a gathering was bound out of sequence: Qui mancano sei capitoli. Va nella fine et troveragli. (The reference to six missing capitoli or cantos corresponds exactly to one gathering of 24 pages.) A later note states that the mistake has been rectified: Noncci manca niente; seguita: Gia si godea solo del suo verbo. This second note is by Sebastiano de' Bucelli (see below); as currently bound the
gatherings are in the correct order. On the lower portion of this page, reproduced here, the four hands described below are all clearly visible:


Par. xvii 133

The pages are numbered in the top right-hand corner in ink, in an old hand from 1-12, then in a smaller modern hand from 13 on. There are no catchwords.

## Hands

Three hands can be clearly distinguished, of which the first and the third belong to known individuals. A fourth hand, also identifiable, has added several important brief notes, including the one about the restored order of the gatherings on f .168 v reproduced above.
i. The first hand, which copies the text in littera textualis ('semplificata'), is that of Filippo Villani, as is stated on f. 201r:

Questo libro fu scripto per mano di messer
Phylippo villani il quale in firenze in publiche scuole molti anni gloriosa mente con expositione litterali allgorice
anagice et morali lesse il predetto
et sue expositioni a molti sono conmunicate
Fu el detto Messer philippo villani Canccelliere del Comune
di perugia piu et piu anni Sicome appare In molte sue
epistole Scritte a diuerse persone

> (1) vetto libso fin tiepto pmano dm mill phylupo sullam ilquale ifirenze in
mente cone) profitione liãli. Allgozere
et fue eppulition amolet tono girdte.

- fuclsetto maff philipo orllmy. Conaellieve לelcomie
orperugn pill pruining. Snome appnive 3 momole fue
epipole savite ntruacia fonc.
(See also an image of the whole page 201r.)

This note, whose accuracy is no longer doubted, ${ }^{117}$ is by Tedaldo della Casa (see iii. below); the final sentence is by Sebastiano de' Bucelli (see iv. below). Also in Villani's hand are the two brief passages of commentary which, as noted, fill the blank spaces left at the end of two cantos in Inferno (vi and xi), and a few marginal notes and variants, some of them subsequently erased. ${ }^{118}$

Villani's activity as an enthusiastic promoter of Dante studies is reflected not just in the public lectures referred to in this note, and the scribal and editorial activity reflected in this codex, but also in the composition of a commentary on

[^58]the first canto of the Commedia. ${ }^{119}$ In a letter to his friend Coluccio Salutati Villani described himself as 'incontentabile delle cose sue fino all'eccesso', and something of that personality is perhaps detectable in ms. LauSC.
ii. The second hand is that of the unidentified reviser who subjected the whole text to a thorough checking and correction. We will return to his contribution in detail shortly.
iii. The third hand is that of Tedaldo della Casa, a friend of Villani's and owner of the codex, whose identification of it as a Villani autograph we have just examined. The codex was probably given to him by Villani, who is known to have given him other books. Fra Tedaldo is responsible for everything added in red ink: the rubrics, the explicit at the end of each canto, the strokes through the initial letter of each tercet (all added after the work of the unknown reviser). Pomaro Analisi codicologica 1067 comments on the 'ormai avanzato grado di incapacità grafica' in Fra Tedaldo's additions, which she attributes to his advanced age at the time of writing, probably after Villani's death. ${ }^{120}$ This is a convincing explanation of what might otherwise seem to be merely rather slapdash execution of the rubrics and explicits, as here:


Purg. xiii initial rubric

There are some inconsistencies in the explicit formula used, with the title of the cantica oscillating between Latin and Italian: thus Explicit canto terzo inferni but Explicit canto iii purgatorio. On one page (f. 132v) the red strokes through the capital letters of each terzina are missing, presumably through an oversight. Fra

[^59]Tedaldo also adds the canto summaries of Inferno ii - vii which appear alongside the opening lines of the text in these cantos.

The three hands are clearly distinguishable at the end of Inferno x where the final lines of the canto in Villani's hand are followed by the explicit in red in Tedaldo della Casa's hand, and then an inadvertently omitted terzina, to be inserted at the appropriate point, in the corrector's hand.


```
    av contman noth/mu' commamis qucl flygror
```



```
    Q uama, nurzu omamiz' altola-miggyo!
    amucllon/alowíbullumpro tucto uca゙।
```





```
    per un Rantuz chanmai utalla-ficio,
```



```
        - Ppreciar
    Equlact. canto.义. enfeant.
```




```
    T:O fatutaralfio domando.
```

Inf. x 124-136
iv. the fourth hand is that of Sebastiano de' Bucelli, librarian of the convent of Santa Croce around the middle of the fourteenth century, who is responsible for the note on the restoration of the correct order of gatherings cited earlier, and for an addition to Fra Tedaldo's explicit in red for the final canto of Paradiso: Explicit canto xxxiii paradisi, to which he added in black: et vltimo di tutta la comedia di dante.


He also added several notes which bear on the dating of the manuscript (see Date).

## The revising hand

The work of the unknown reviser, who subjected the whole text to a careful and extremely thorough revision, was analysed by Umberto Marchesini in his important and still valuable article Due mss. autografi di Filippo Villani (Archivio storico italiano, serie V, t. II (1888), pp. 366-93). We can usefully summarise Marchesini's conclusions about the contribution of the revising hand, to which he attributes the following categories of intervention:
i. the addition of punctuation, accents and most of the underdots throughout the text; ${ }^{121}$
ii. the adding of dots on the $i$ 's through the whole poem, ${ }^{122}$ but only in certain positions, if they precede or follow a letter composed of minims ( $m, n, u$ - those $i s$ adjacent to letters of other shapes do not have dots added to them): thus in the opening lines of the poem there are dots on camin $\tau 11 m 112$ and uita $1 \boxed{\mathrm{l} / \mathrm{l} /}$

iii. the correction of a few textual slips, eg. at Inf. vii 50 ricoscer is corrected riconoscer Mafixz and at Par. xix 129 segnenera is corrected segnera

iv. the addition of two missing tercets at the foot of the page, with insertion markers, at Inf. x 124-26 (as shown above) and at Par. xi 70-72:

[^60]
## + colum cheatucto almonds fie perzizr. <br>  firmination ct poucztri pquicft alluaint piano homimal nelonio porzaz Diffico. <br> + R cullet, e IB coflanter ne frore, Fo me d rue maxima xímafé ¿̆́nfo ella con $\overrightarrow{\mathrm{p}}^{2} 0$ printer infin hacroct.

v. most importantly, a small number of notes and a large number of variants.

In a footnote Marchesini mentions the re-ordering of words in a line by the placing of numbers over them and attributes these corrections also to the revising hand. He argues for the reviser's responsibility for i. and ii. (punctuation, accents, underdots and dots on $i s$ s) on the basis of ink colour, noting that the colour of the ink in these small additions matches that of the ink in marginal variants which are clearly in the reviser's hand. ${ }^{123}$ But in truth looking at the manuscript now it is very difficult to say with certainty that this is the case. The opening lines of Inf. i look like this:

[^61]

So here, according to Marchesini's account, the dots on the $i$ 's and the accents on $\grave{e}$ - lines 4 and 7 (twice) - are added by the correcting hand, along with the punctuation, and all this can be securely distinguished from Villani's hand. But it has to be said that the ink colour here has such marked variation within the lines that it is difficult to assert this with confidence, especially so if it was Villani's habit to copy his text and then return to it subsequently to add punctuation, as seems to be the case with other Villani autographs. ${ }^{124}$ It may be that since Marchesini examined the codex 120 years ago there has been some deterioration in the colour of the inks used. His description of the manuscript is so thorough and precise in all other respects, however, that it would be rash to describe his conclusions on this matter as fanciful. We note them here as of great interest but without feeling able to endorse them unequivocally. It is particularly difficult to be sure that the underdots are added at the same time

[^62]and by the same hand as the punctuation and the accents and the dots on the $i$ s. The following samples show that underdots are often dark and do not seem to match the paler ink of the accents and marginal variants.

##  <br>  <br> הifizalloza divalchivin fivz finctr- Inf. xxii 104-5

This last example shows how the colour even of accents and dots on $i$ s, as well as underdots, is not uniformly differentiated from that of the surrounding text as Marchesini seems to suggest. The point could be illustrated many times over. The variation in ink colour in the word sufolerò is striking, but not significant.

This as-yet-unidentified personage, described by Pomaro as 'una ancora ignota, ma notevolissima, personalità della cerchia del Salutati', signs off sections of the text with a hexameter, first at the end of Inferno (f. 68v), and again at the end of Paradiso (f. 200v).


Inf. xxxiv 139

He does the same thing in other manuscripts he copied, as both Marchesini and Tanturli note. The various points at which he refers explicitly to Coluccio Salutati (messer coluccio) reflect his closeness to the ambiente of which Villani also was a part:




Further information about other manuscripts copied by this hand can be found in Tanturli L'interpunzione 67 n .3.

## Linguistic character

The language of the codex is Florentine, though much more humanistic and less markedly vernacular in its forms and spellings than ms. Trivulziano 1080. Among the many Latinate spellings and word forms we can note: domna; flammeggio; bomo; bonore; laco; nocte; plaghe; puncto; sapientia; scripte; silentio; somnio.

Illumination
Elaborate decorated initials in red and blue at the beginning of each cantica:


Smaller decorated initials alternating in blue and red at the beginning of each canto (the guide letters for the illuminator are still visible in the far left margin); red stroke through the initial letter of each terzina.

## Rubrics

Rubrics and running heads, as noted, were added by Tedaldo della Casa, and their somewhat shaky and occasionally smudged appearance would seem, as Pomaro observes, to reflect his advanced age at the time of writing.

## 

Inf. xvii explicit

## Expléjaisen canto स्y).

Par. xix explicit

## Date

The date 1343 which appears twice in the codex (and indeed in the description of this manuscript on the Biblioteca Medicea Laurenziana web site) is agreed by all scholars to be inauthentic. The date appears at the end of the Paradiso ( f . 200 v ), in a note:
completum in festo sancte anne in quo dux athenarum gualterius tyrannus ciuitatis florentie pulsus est 1401343


Par. xxxiii 142-145

Here again we see the clearly differentiated hands of Villani (text and annotation in right margin), Tedaldo della Casa (explicit in red), and the reviser (amended
reading disio at line 143 and quotation following the explicit but clearly written before it since the red ink overwrites it). Sebastiano de' Bucelli adds to the explicit (et vltimo di tutta la comedia di dante) and amends the date at the end of the marginal annotation, changing an original 1401 to 1343 ; see Pomaro Analisi codicologica 1067.

The date 1343 appears again on the guard page at the end on a parchment fragment of an older guard page pasted to the page (f. 215r) as part of a note:

Questo Dante fu ad uso di frate tedaldo della chasa, et vivendo lassegno allarmario del convento di sancta + [= Croce] di firenze dellordine di sancto francescho a perpetuo uso. Scritto per mano di messer philippo villani negli anni di christo 1343

This is another note by Sebastiano de' Bucelli, who will have ensured that the date here coincided with the date he had amended on f .200 v .

The arguments for the inauthenticity of this date are persuasively rehearsed by Marchesini, who dated the ms. c1391, a dating accepted by Petrocchi. The most recent expertise (Pomaro Analisi codicologica 1067) suggests a date about a decade later, and makes the palaeographic point that 'Villani usa la $s$ diritta a fine parola: aggiornamento grafico che ulteriormente àncora il prodotto al Quattrocento.' We have no documentary evidence of Fra Tedaldo's activity after 1409: since his rubrics and explicits were added after the work of the reviser, we can assume the reviser too was working in the first decade of the century. The manuscript was copied in Florence.

## Provenance

The codex came to the Biblioteca Medicea Laurenziana from the convent of Santa Croce, as a printed note pasted on the verso VIv of the last of the opening guard pages attests, and the note by Sebastiano de' Bucelli cited under Date confirms. Because of its provenance the manuscript is usually referred to as 'il Laurenziano di Santa Croce', and this name is reflected in its sigil LauSC. In
the past it was sometimes referred to as 'il codice di Filippo Villani' or 'cod. Villani', as in Casella Sul testo 23.

Select Bibliography
Petrocchi Introduzione 10-14, 47-55; Witte Commedia lxxvi-lxxx; Marchesini Due mss. autografi 366-93; Casella Sul testo 5-85; Mostra codici romanzi 34 f.; Mostra di codici 57-58; Roddewig Commedia-Handschriften 40-42; Tanturli L'interpunzione 65-88; Pomaro Analisi codicologica 1055-68(1066-67); Bertelli La «Commedia» 48-49.

## Witness descriptions: Mart

## Name and location

Milan, Biblioteca Nazionale Braidense
Aldina AP XVI 25 (Roddewig n. 465)

This Aldine edition of the Commedia published in Venice in 1515 was collated in 1548 in Pisa by the humanist Luca Martini against an early manuscript of the poem which is no longer extant. The lost manuscript was copied between October 1330 and January 1331, as the introductory material and colophon (also copied by Martini) state: it thus predates any surviving copy of the poem. Martini's meticulous collation records variant readings in the margins of the printed edition and also makes many small adjustments and alterations on the line within the printed text itself. The systematic character of Martini's procedure is evident on every page; the value of the resulting testimony is rightly emphasised by Giorgio Petrocchi: 'il suo scopo di tramandarci l'intera veste di un così venerando documento codicografico si deduce chiaramente dalla regolarità del lavoro e dalla precisione degli interventi correttorî. ${ }^{125}$ Like Petrocchi, we assume that the Aldine text with the Martini variants incorporated into it constitutes an accurate and virtually complete record of the lost early manuscript.

## Contents

The Commedia:

[^63]- Inferno pp. 2r-81v (page 82 is blank recto and verso)
- Purgatorio pp. 83r-163r (163v is blank)
- Paradiso pp. 164r-244r
- diagrams showing the arrangement of sins in hell and purgatory occupy p. 244v and the two following unnumbered pages; there then follow two blank unnumbered pages, of which the second has the Aldine anchor emblem on its verso (the emblem had been used by Aldo for the first time in the 1502 edition of Dante). A full account of the makeup of the volume is offered below.


## Collation

$1^{2}$ This single folded sheet of two unnumbered pages contains preliminary matter: the frontispiece with the title DANTE COL SITO, ET FORMA DELL'INFERNO TRATTA DALLA ISTESSA DESCRITTIONE DEL POETA, the publisher's emblem, and owner's notes of Luca Martini and Donato Vestri, followed by a dedication to Vittoria Colonna.
$2-32^{8}$ The gatherings are marked $\mathrm{a}-\mathrm{z}$, then A-H; they are listed at the end of the text after the colophon on p .244 r with the comment: Tutti sono quatterni.


The first unnumbered page of the first gathering is a second title page, with the single word DANTE and the Aldine anchor emblem on the recto and a different version of the title on the verso ([lv]): LO'NFERNO E'L PVRGATORIO E'L PARADISO DI DANTE ALAGHIERI. The recto page ([lr]) has an owner's note and date (1548) and a long explanatory note by Martini:

Il Presente Testo è stato ridotto a punto come uno testo antico scritto l'anno 1330 come si vede nell'ultimo di questo libro che è copiato quello che è in detto libro il quale è di messer Prozio ghrifi Pisano che me ne ha servito questo dì 15 di ottobre in Pisa Et detto testo an tico è scritto in carta pecora di lettera mercantile co me il mio che quando riscontrammo a San Gavino ee fu segnato .A. che lo trovammo molto buono Et a me pare della medesima mano ${ }^{126}=$ questo si è fatto così per poterlo havere a sua posta et scontrare con gli altri =

The text of the Commedia begins on 2 r and continues to 244 r . The pages which follow (the second half of the final gathering) are unnumbered but would be 245-248 had they been numbered. The diagrams occupy 244 v and both sides of the following two pages, and represent a diagram of Hell, a diagram of lower Hell, and a diagram of Purgatory.

Martini's copy of the original explicit of the 1330-1331 manuscript is on the verso of the first blank page ( 247 v in effect).

Explicit liber comedie Dantis Alagherii de Florentia per eum editus sub anno dominice incarnationis $\mathrm{M}^{\circ} \mathrm{CCC}^{\circ}$ de mense martii sole in Ariete luna xiiii ${ }^{2}$ in libra

Et ego forensis eidem conditoris conciuis presentem librum scripsi manu propria gratis et precibus Ioannis bonaccursi de florentia amici krissimi si qua uero parte uel partibus quisnam inueneritur scriptura confusum rogo ne mee forsitan impu

[^64]tetur inertie na $m$ defectu et imperitia uulgarium scriptor $u m$ liber lapsus est quam plurimu $m$ in uerboru $m$ alteratione et mendacitate Ego autem ex diuersis aliis respuendo que falsa et colligendo que uera uel sensui uidebantur concinna in hunc quam sobrius potui fideliter exemplando redegi Dans initium operi die $\mathrm{xv}^{\mathrm{a}}$ mensis octubris et ut mihi per tempus uacabat usque ad diem $\mathrm{xxx}^{\mathrm{m}}$ mensis Ianuarii proximi subsequenter explicandum transtuli anno uero domini $\mathrm{M}^{\circ} \mathrm{ccc}^{\circ} \mathrm{xxx}^{\circ}$ xiiia ${ }^{\mathrm{a}}$ Indictione

Summa uersuum totius Comedie quatuordecim milia ducenti triginta tres uidelicet 14233

Infer: 4720
Purg: 4755
Parad: 4758
$14233^{127}$

Vandelli Il più antico manoscritto 55-57 transcribes this note, making some small emendations and justifying them in a long footnote. ${ }^{128}$
$33^{8}$ This last gathering, consisting of 8 pages in much coarser paper, was added to the original edition (of which it is not part) at the time of binding. These pages contain notes by Donato Vestri, whose name appears on the title page along with Martini's as a later owner of the volume, and who added scattered marginal notes throughout. Vandelli Il più antico manoscritto 52 n .1 argues from

[^65]internal evidence that Vestri's notes were added at the end of the sixteenth or beginning of the seventeenth century.

There are three small anomalies in the page numbering of the volume: page 51 is numbered 52 , although the previous page is numbered 50 and the following one is also numbered 52; page 143 is wrongly numbered 128 (Vestri strikes out the 128 and adds 143 in ink); page 217 is misnumbered 227 . There is a further small anomaly in the numbering of the gatherings: page 10r carries the signature a2 by mistake instead of b2. As noted in the Mart Transcription Note, at least one of the anomalies in page numbering is corrected in some later copies of the edition.

## Condition

The condition of the paper is good, but there are occasional small damp stains, eg. on p. 47 r :

```
    Soltu sibulif Cain, et le ppine.
    E t ga hier notte fulaluna tonda:
    Ben fen'dee vicordar; she non fi norque
    A loma uolmper la fllua fonda.
```

and from time to time marks show through from the reverse side of the paper. From 233 r -236v the top corner and outer edge of the pages is quite badly waterstained.

Quelli, che wed quii, firormmodfí
A rianofar fo dela bonarte,
Che glishuisis fatai a tente intonder profis:
P erche lewifie lon firo exalente
Con gratia illominalion er an lor merto; - Shominatio
sith han plitid of frme nolonate.
E t nonnoghtache dulbi, ma fiearto,
che riecruer la gratia e' meritorigy
secondo che laffatue PR aperto.
H omai dintorme, a queffo corifforio
poi animplar aflitije le parrole Proil

M a perchè nerria per le woftre fohole
si legge che liangeliaa nathoa $\mathrm{E}^{\prime}$ tul; ;he'ntende, © firiarda er wole;
A mehor dirojperche turnegg purt
Ls werim, che la gut ficminide Equinocendo in if fitta letticio.
Quefte fiftimeic peishe fir gurande Detla fiana divio nnon molfer nijo
Darfla da nie vulla fin nafornde:
P ro non bmo nedé interafo
Da Dinomo obbiettlese pera non bifagna Rememerar par anatiodinulo.
$5 i$ the la gus non dormendofi fognd credindo er non credodo diarr sero
Ma ne lun'é piu molpuer piu nergegna.
v einon andate giu por min fentero
FPhilofoplínido itrute wi traforte
I'omar de l'apporonz, cifioponjero.

Page 236 is badly wrinkled, though the text remains legible.


There are occasional marks which have no textual significance but are connected with the type-setting and printing process (eg. on p. 48r line 54, where the stroke before the $n$ of nascosamente is an irregularity in the printing, and p. 52 r line 129 where the stroke after $E t$ likewise has no textual significance). Occasionally a worn piece of type is used, as at p. 31r line 133, where the fourth letter of sant is badly worn:


## Hands

Luca Martini, the collator of the lost early manuscript, was a humanist who had a long-standing interest in the text of the Commedia. He owned several manuscripts of the poem, and two years earlier in 1546 had joined with three others to form a group which had compared the text of the poem in the 1515 Aldine edition against seven early manuscripts; see Barbi Della fortuna; DBI LXXI 234-38; Vandelli Il più antico manoscritto 48-51.

The copyist of the lost manuscript to whose readings Martini's collation bears witness is identified in the lengthy note quoted above as Forese, identified by Petrocchi (following Billanovich) with Forese Donati, the parish priest of Santo Stefano in Botena. On Forese's hand, Vandelli Il più antico testo doubted that it could be 'la medesima mano' as that of another of Martini's manuscripts, as was stated in the note cited under Collation; Savino L'autografo virtuale 6 points out that 'di lettera mercantile' cannot in any case be an accurate characterisation of either hand. ${ }^{129}$

There are occasional underlinings and marginal notes by Donato Vestri, for example at pp. 9v, 10r, 12r, 26v, $29 \mathrm{r}, 41 \mathrm{r}, 41 \mathrm{v}, 49 \mathrm{r}, 49 \mathrm{v}, 50 \mathrm{r}, 55 \mathrm{r}, 55 \mathrm{v}, 62 \mathrm{r}, 115 \mathrm{v}$, 168 v . These are not included in the transcription.

## Linguistic character

Florentine. The linguistic characteristics of the emendations introduced by Martini into the Aldine text have been analysed in fine detail by Geymonat Tendenze correttorie 263-89, who comments: 'Le tendenze correttorie riscontrabili in $\mathrm{M}[$ art $]$ rivelano la sensibilità linguistica di Luca Martini, la ricettività del codice collazionato ai tratti evolutivi del fiorentino di primo Trecento ... e, ad un tempo, la presenza nel manoscritto di forme arcaiche ...' The linguistic character of the lost manuscript is thus close to Triv: 'Ciò che trapela dalle varianti d'interesse linguistico concorda inoltre, specie per tratti

[^66]propri del fiorentino due-trecentesco, con la veste del codice 1080 della Biblioteca Trivulziana di Milano ... Nelle correzioni dell'Aldina è infine evidente la tendenza ad eliminare latinismi nel vocalismo e nel consonantismo.'

## Rubrics

Martini added rubrics to the 1515 edition at the beginning and end of each cantica, and for the first and second cantos of each cantica only. Thus:

2r Incipit cantica prima Comedie Dantis Alagherii de florentia incipit primus cantus Inferni
4 r incipit secundus Cantus Inferni
81v Explicit prima pars commedie Dantis Alagherii in qua tractatum est de inferis
83r Incipit Cantica secunda Comedie Dantis Alagherii Incipit primus cantus
Purgatorii
85r Incipit ii cantus Purgatorii
163r Explicit secunda pars commedie Dantis alagherii in qua tractatum est de purgatorio

164r Incipit Cantica tertia Comedie Dantis Alagherii Incipit Primus cantus Paradisi

166r Incipit Secundus Cantus Paradisi
244v Explicit liber comedie Dantis Alagherii de Florentia per eum editus sub anno dominice incarnationis
$M^{\circ} C C C^{\circ}$ de mense martii sole in Ariete luna xxiiii ${ }^{a}$ in libra

## Date

As noted, the base text for the collation is the Aldine edition of 1515 , while the lost manuscript whose readings Martini records was copied in 1330-1331.

## Provenance

The collector Franco Moroli (who owned the Aldine edition when it was examined by Vandelli) sold it to Hoepli who gave it to the Biblioteca Nazionale Braidense; see Petrocchi Introduzione 76.

## Select Bibliography

Petrocchi Introduzione 76-78; Renouard Annales 73; Vandelli Il più antico testo 111-44; Billanovich, Prime ricerche; Roddewig Commedia-Handschriften 197; DBI 234-38; Fumagalli Osservazioni 403-416 (406); Savino L'autografo virtuale 257-65; Geymonat Tendenze correttorie 263-89; Pulsoni Un testo 467-98 (46769).

Witness descriptions: Rb

## The Two Manuscripts

Two manuscripts in different libraries constitute the single witness Rb . They have been described in great detail by Gabriella Pomaro in I copisti e il testo. Quattro esempi dalla Biblioteca Riccardiana, in La Società Dantesca Italiana 18881988. Convegno Internazionale, Firenze 24-26 novembre 1988, Atti a cura di Rudy Abardo, Milano-Napoli 1995, 497-536 (498-503; 514-25). My description is in some particulars indebted to hers. The two manuscripts share the following characteristics: materials (parchment); page size ( $380 \mathrm{~mm} \times 250 \mathrm{~mm}$ ); format (a single column of text with ample margins to accommodate the commentary). An account of other features the two manuscripts have in common (identity of copyist; linguistic character; rubrics; miniatures; date) follows the individual descriptions.

## Name and Location I

Florence, Biblioteca Riccardiana
Ms. Riccardiano 1005 (Roddewig n. 302)
Contents
The Commedia:

- Inferno i - xxxiv 2 ff . $1 \mathrm{r}-101 \mathrm{v}$ (the remainder of Inf. xxxiv is missing)
- 3 blank parchment pages ff. 102r-104v
- Purgatorio ff. 105r-187r

Jacopo della Lana's Commentary fills the margins surrounding the text, at one point occupying four consecutive pages with no accompanying text (ff. 20v-22r). The commentary begins with the gloss on Inf. i 8: some pages of commentary, perhaps a bifolio or a quaderno, are presumed to be missing at the beginning (Morpurgo I codici 31; Pomaro I copisti 517). As well as the missing lines 3-139
of Inf. xxxiv there is a missing tercet in Inf. ii (lines 55-57) and a self-declared 22-line interpolation inserted as a space-filler in Inf. xx (f. 58v): Quiue non uuol testo ma pur la uista face / per gram prohemio che fece l'autore ... (For a fuller account of this interpolation see Rb Transcription Notes.) The strategy for avoiding white space on the page - filling space inadvertently left blank with extraneous material, for aesthetic rather than textual reasons - is employed in the commentary as well as the text, for example at ff . 11 r and 14 r , where lines from Dante's canzone CIV Tre donne intorno al cor mi son venute (lines 1-11 and 19-33) are used as a space-filler. ${ }^{130}$
17. qum100afcosfe ceiturowgram uamo.i
itatros.cquis finmilisotuxtqueftiv2c
los collomit fortrlanzocivtcate oattotto
fanticicilzicfolmafi purcontil.Connme.
tectxiciccir cixilo pictotocitlo celct cert
क010: frctouminlatoi: 001 pock tutuatos
mfpocetorecófufput ituft nofhzititul

Occasionally such space is filled with the name of Jacopo della Lana in varying forms, as here:

[^67]

Inf. xxii 3 (f. 65r)

Pomaro's conclusion is that 'la bottega di Galvano, indubbiamente di altissimo livello tecnico, ha certo preoccupazioni più di ordine estetico che filologico'.

Binding
Wooden covers, brown leather spine, no title (a sticker with the Riccardiana shelf mark is glued to the base of the spine); two unnumbered parchment guard
pages at the beginning, and two at the end. Click on the links to see images of the guard pages: ir, iv, iir, iiv.

## Collation

$1-10^{10}, 11^{4}$ ( 1 folio containing the end of Inf. xxxiii and the first two lines of Inf. xxxiv followed by 3 blank parchment pages, probably added at the time of binding to replace the missing pages which contained Inf. xxxiv 3-139); 12-19 ${ }^{10}$, $20^{4-1}$ ( 3 pages only; the original fourth page which would have been blank has been removed). The gatherings are numbered at the very bottom of the page in the centre in ink in a small hand in roman numerals ( $\mathrm{i}-\mathrm{x}$ ), as here at f .11 r :


This numbering starts again in Purgatorio, suggesting that the cantiche were originally intended to be bound individually. ${ }^{131}$

The folios are numbered in the top right-hand corner in modern printed form. The numbering is continuous from 101 (the last folio of the text as we have it) through 102-104 (the blank replacement pages) and then 105f. for the text of Purgatorio. The catchwords at the end of gatherings thus fall in Inferno on f . 10v:

then f .20 v , f. 30 v and so on, but in Purgatorio fall on f. 114v, f. 124 v , f. 134v, f. 144 v , f. 154v, f. 164v, f. 174 v and f. 184v.

[^68]Pomaro's description of the manuscript includes an expert account of the way in which it was assembled: the commentary was copied (and corrected) first, the text inserted subsequently into the carefully calculated space left at the centre of the page, and then corrected in its turn. Traces of the complex numerical calculations involved in putting the text and commentary together on the page, leaving exactly the right number of lines for text in order to ensure that text and gloss proceed pari passu, are still clearly visible. All the features and details Pomaro describes, including the roman numerals at the top of each verso page which indicate the number of lines of poetic text to be accommodated on this and the facing page, can now easily be examined on the images by anyone interested in this aspect of the manufacture of the codex. Her fascinating and expert account contains more detail than is required for our present purposes, and we urge interested readers to consult her article.

Name and Location II
Milan, Biblioteca Nazionale Braidense
Ms. AG XII 2 (Roddewig n. 463)

## Contents

The Commedia:

- Paradiso ff. $1 \mathrm{r}-100 \mathrm{r}$ (a sonnet follows the explicit on f .100 r )
- the Credo sometimes attributed to Dante ${ }^{132}$ f. 100v ('Credo in una sancta trinitade ... Possa la uitta del secul futuro.').

Jacopo della Lana's Commentary fills the margins and at a number of points occupies several consecutive pages with no accompanying text, with some sequences of pages containing commentary only (ff. 1r-2v; ff. 17v-20r; ff. 32v33r; ff. 42v-43r; ff. 73v-74r; ff. 76v-77r; ff. 80v-81r; ff. 87v-88r; ff. 97v-98r). Images of these commentary pages can be accessed by clicking on the N at the

[^69]foot of the page of text which they follow. Pomaro notes that in the Paradiso the aesthetic imperative operates less rigorously than in Inferno and Purgatorio: text and commentary are often mismatched by several pages, and the space left for the commentary has sometimes been badly misjudged, leaving large amounts of white space on the page. She concludes that 'proprio la terza cantica ci sembra rispecchiare la fase più arcaica, più rozza tecnicamente', although she points out that this could just reflect the quality of the exemplar. A similar conclusion about the relative chronology of the two mss. has been reached by art historians examining the miniatures (see below).

## Binding

The codex has been rebound with two new paper guard pages at the beginning and the end; the old covers have been preserved and restored with a new spine in beige leather. Where there are miniatures these are now protected with interleaved tissue paper; a pencilled note inside the front cover, dated 24.vi.88, lists the miniatures. The codex is now kept in a marbled protective case.

## Collation

$1-10^{10}$

The folios are numbered in a recent modern hand in pencil in the bottom righthand corner, and in ink in an older modern hand in the top right-hand corner. The gatherings are numbered at the very bottom of the first page in the centre in ink in a small hand in roman numerals.

Pomaro considers the question of whether the three cantiche of the poem can rightly be thought of as constituting a single witness, given that they were originally separate physical entities, and that there are some small differences in the treatment of rubrics, running titles and explicits in the Paradiso. But bearing in mind that they are certainly copied by the same hand, and that the correction method employed is closely similar throughout, she concludes: 'la prassi di copia è trasparente e omogenea e rende plausibile la loro considerazione come un
testimone unico'. Nothing in our experience of transcribing the text of the poem conflicts with this assessment.

Hands
Littera textualis (bononiensis). A note at the end of Paradiso (f. 100r) identifies the copyist: 'Maestro galuano scrisse 1 testo e la ghiosa merce de quella uergene gloriosa.'

"्cquclinagat glonof.

Information about Galvano da Bologna, of whose activity we have evidence from 1332 onwards and who died in 1347 or shortly after, can be found in Livi Dante 51-52, 54. Pomaro I copisti 515, while acknowledging the difficulty of secure differentiation of hands, given 'la rigida anonimità della rotunda', nonetheless argues in detail for a different hand in the opening pages of the commentary (but not the text) for Inferno (up to f. 24). There is no punctuation to speak of in this ms. Art historians, as noted, identify two different hands responsible for the miniatures which adorn the initial letters of each canto and its commentary (see below).

## Linguistic character

Petrocchi Introduzione 83 speaks of a 'colorito bolognese ... evidentissimo' which all scholars who work on the text have recognised, reflected in forms like: megio; soci; çoglire; caxone; famoxo. A detailed analysis of the linguistic character of the codex is offered in Romanini Codici.

## Rubrics

Rubrics, and running titles in red and blue, are in the hand of the copyist. The rubrics are in Italian for Inferno and Purgatorio (except for Purg. i) and Latin for

Paradiso. The copyist also indicated the initial letters of each terzina to be marked with a paraph marker, usually executed alternately in red and blue, though sometimes the sequence is not maintained.

```
    G 10 menten of thot mexte doto mifi
    \(\xi^{9}\) to menten oinoralin o pulo
    (Q tunwo ficl monto glata utafi fappf
    71 onulifouetn matur otuot otct
    voneplon pitutoamoati gifi
    13 omagtoz contio oila fiimasantiqua
    \(\mathcal{C}\) omtincoactolanf monmozimmo
    \(p\) ut clome quella cn tuenco afiticia
    of not licamil qua cla mentimo
    c lomic foict Litmguta clx puzlanc
    G tto thace of fuon coric quanto
    \(\sqrt{0101} \operatorname{mit}\) an azce che fotmfic
    os pu Dun ano la prefo agact
    P \(2 m\) in chefi chea La nomafic
    If e wicegt téfiglo nelipict
    vel uccbio patio nel xebito.mionc
    7 oqual tonici puolope fiz heta
Timax ptat vichtivame lizcoze
    © bioctor aviuenu xl monto afpato
    E OIt uty buntint c al thalose
    0.1 mifinit plalto manc apesto
    fol con un lengnoc cóquelli copngnt
    P taoli mliquil no fin oufam
    f in lito clituoutot mfin La fung
    \(f\) minel mozalo chfola on favime
```

Inf. xxvi 80-104r (f. 108r)

Occasionally the copyist has lost track and the wrong lines are marked, as our editorial notes to the transcription point out from time to time (and see also Rb Transcription Notes).

At f. 50r Par. xv 108r f.

> If mofhat cooclan amem fi pute ve It oncanumtoancosamonte malo 2) Alvofro tucehtoro elx come minto
> matin clmontaz fincoffifinanciclatom 3 cimaon tat moio anaz anto จ1 anoto crofio cuan m to fuxclo
> 7 atoma fix fincat tolto orpmio
> e uroiquel mencilicquel axlucebto
> e ficz contitn ala pritc fonam
> € Icfuctoncalfilforalpenceloro
> O fostimate calfatnar chisczen
> -) cllafunfepultumяancos nulla
> e mpfanas nel letto onfatm
> 7 una ticgbuma aftuplo xe Lichill $\epsilon$ confolinto ufata trioma
-1 atran ancircoala tuxan lacbiom
f anoleguma con la fur famgh
2) tupim vificfole conioma
6. anatenuto aloz tal mamugha
Y ha ananglxitaynlapo fatericilo
at uatc oz fint andantoo ecoznigh
C offinpofato acontite
$\gamma$ mita olatrom a confi volice oftello
exun mivice clsamact ialte gnow
Enclo.mnclo ucftro hatiteo
Tnfictic fir tpiano calaaguma
wosotto fitmo fintr 7 chico

> Equinoll fopzaneme thofifo fipolegintal lompenco contco
> Etelmanicerla fina minas
> T anto pa opzaz h vicur mgrato
> 12) ictornamanicontiontancqueas
> Diquellalegicil au popol ufuzim
> Pcolat vi pifto nofta tificas
> (a)mufirio alqucla giente turn
> $D$ ificlupneo all morro fatace
> 71 andmoz molte amme of tusp位 ticnial manto aquefla pace
the copyist is confused by his own correction and has marked the wrong lines for rubrication (the last lines of the terzina instead of the first lines). He here seems to have realised his mistake, and has omitted the rubrication altogether.

## Miniatures

There are miniatures at the beginning of each canto, in the initial letters both of the text (usually five lines deep) and of the commentary (usually four lines deep), so that a canto opening typically looks like this:


Purg. ix
or this:


Altogether there are 67 miniatures in the Inferno ( 34 for the text, 33 for the commentary), 66 in Purgatorio ( 33 each for text and commentary), and 67 in Paradiso ( 33 for the text, 34 for the commentary). D'Arcais Le miniature describes all the miniatures in both mss. She argues here at greater length for a
thesis already advanced in her earlier article Il manoscritto that the Paradiso illuminations are by a different hand (Maestro del B 18) from those in Inferno and Purgatorio (l'Illustratore) - a more archaic hand, belonging to an artist of a generation earlier. This conclusion has been generally accepted, though the identity of the two miniaturists is debated. Levi D'Ancona $I$ due miniatori identifies the Paradiso miniaturist as the same Maestro Galvano who copied the text, and argues that the miniatures for the Inferno and Purgatorio are by his son, Tommaso. Both scholars point out that architectural details would seem to confirm an earlier date (or an artist of an older generation) for the Paradiso miniatures. In their description of Rb in I Danti Riccardiani 47-50 Boschi and Nerucci draw attention to the figurative connections with the legal ambience of Bologna, seen in the recurring theme of financial corruption, represented by figures offering bags of money:

or figures offering money for sexual services, as when a friar offers a woman a bag of money while raising her skirt:


Purg. xxvi (f. 166r)

D'Arcais, followed by Battaglia Ricci Il commento illustrato, points out that the miniatures often illustrate the della Lana commentary rather than the text of the poem, from which they sometimes seem oddly remote. A full list and detailed technical description of all the miniatures and the other decorative elements in the Paradiso codex is given by Lazzè Balzarini in Miniature 158-67, along with a detailed summary of earlier scholarly discussions of the codex and more recent contributions on attribution, with ample bibliography. Notes for the miniaturist have usually been erased, but some are still visible, eg. at f . 7 v un aire scuro:


As Pomaro and other scholars cited above point out, some of the notes of this kind cited by Morpurgo in his description of the codex are no longer legible (eg. at 45 v ).

## Date

Petrocchi Introduzione 83-84 summarises this much-debated question, and opts for a slightly earlier date than Barbi's 'intorno al 1340, certo non molto dopo'. Lazzè Balzarini Miniature 166-67 usefully recapitulates the issues: 'Un utile termine ante quem ci è fornito dalla data 28 marzo 1347, quando il copista, Maestro Galvano, redige in Bologna il suo testamento, corpore languens ... Un irrefutabile termine post quem è invece costituito dall'anno 1328, poiché si ritiene completato il commento di Jacopo della Lana tra il 1324 e il 1328 ... '. She also points out pertinently that the details of female fashion and dress in the miniatures confirm a date in the 1330 s rather than the 1340 s. ${ }^{133}$

## Provenance

The codex originally formed part of the library of Santa Giustina di Padova. Lazzè Balzarini Miniature 158 and 164 provides a detailed account of traces of this provenance remaining in the codex containing the Paradiso, which was acquired by the Biblioteca Nazionale Braidense in 1810.

## Select Bibliography

Petrocchi Introduzione 83-84; Morpurgo I codici 31-39; Morpurgo I manoscritti vol.I, 6-7; Livi Dante 51-52, 54; Mostra di codici 199; Brieger-Meiss-Singleton Illuminated Manuscripts; D'Arcais Il manoscritto 33-41; D'Arcais Le miniature 105-14; Roddewig Commedia-Handschriften 195-96; Levi D’Ancona I due miniatori 375-79; Un itinerario dantesco; Pomaro I copisti 497-536 (498-503; 514-25); I Danti Riccardiani (the description of Rb on pp. 47-50 is by Marisa Boschi and Cristina Nerucci); Lazzè Balzarini Miniature 158-67; Boschi Rotiroti Un esempio 31-38; Battaglia Ricci Il commento illustrato 601-40; Boschi Rotiroti Codicologia 127; Romanini Codici 387-409; Romanini Manoscritti 49-60.

[^70]Further bibliography in Petrocchi Introduzione, I Danti Riccardiani, Lazzè Balzarini Miniature.

Witness descriptions: Triv
Name and Location
Milan, Biblioteca dell'Archivio Storico Civico e Trivulziana
Ms. Trivulziano 1080 (Roddewig n. 451)

## Contents

The Commedia:

- Inferno $1 \mathrm{r}-35 \mathrm{r}$ [ 35 v is blank]
- Purgatorio 36r-69v
- Paradiso 70r - [10]3v
- Jacopo di Dante's Capitolo [10]4r - [10]5r
- Bosone da Gubbio's Capitolo [10]5r - [10]6r
- a short vernacular prose piece, incipit: ‘Questi sono li nomi delli uficiali et le dignitadi delli antichi Romani' [10]6v-[10]7r. These last two pages are badly rubbed and in parts illegible.

Click on the folio number to see images of $[10] 4 \mathrm{r},[10] 4 \mathrm{v},[10] 5 \mathrm{r},[10] 5 \mathrm{v},[10] 6 \mathrm{r}$, [10] 6v, [10]7r, [10]7v.

Binding
Brown leather binding, rather fragile; on the front:
DANTE MSO DEL 1337
AN. 16. DOPO LA MORTE
DEL POETA

Click on the links to see images of the binding: b1, b2, b3, b4, b5, b6; of the inside covers and final guard page: inside front cover, inside back cover, final guard page recto, final guard page verso.

## Materials

Parchment, very good quality, though not always entirely smooth, as here:


Inf. vi 31-42.

The opening pages have been mended on the upper and outer edges of the folio, and are badly rubbed.


## Page Size

$370 \times 255 \mathrm{~mm}$

## Format

Double column, twelve terzine per column, ample margins. A number at the end of each canto records the number of terzine + one (in other words, the number of rhyme words) in the canto. Thus at the end of Inf. i (136 lines) we find 46:

at the end of Inf. ii (142 lines) we have 48:

and so on. Natale Divina Commedia xxxvi suggests an accounting function for these figures in Triv, noting of the punto which marks the end of almost every tercet: 'esso ha valore di conteggio delle terzine, che formano il canto, alla cui fine si assommano in cifra per il compenso dovuto allo scriba.' The significance
of the counting of terzine for the construction of manuscripts of the Commedia is discussed in Boschi Rotiroti Codicologia trecentesca 43-46.

## Collation

$1-13^{8}, 14^{3}, 15^{2}$

There are two anomalies in the numbering of the folios, as will be apparent from the account which follows (all numbers are in the top right-hand corner of the recto): folios 1-8 are numbered in a modern hand in pencil on the restored upper right-hand corner; folios 9-39 are numbered in ink, in an old hand; folio 40 was originally not numbered, but is now numbered 40 in pencil in a modern hand; the numbering continues from 40 on the next folio (actually 41 if one counts the unnumbered page) in ink in the old hand until 76; then there is a second unnumbered page (now numbered 77 in pencil in a modern hand), followed by a folio numbered 77 in ink in the old hand (in reality 79 , as 2 folios have by this point been omitted in the numbering). In our transcription of the manuscript we have called the folios with repeated numbers 40bis and 77bis. The final pages of the manuscript (in fact, 101-107) are numbered 1-7; we have numbered them [10]1-[10]7.

As a consequence of the inadvertent omission of 2 folios in the original numbering, the catchwords fall on the following verso pages: $8 \mathrm{v}, 16 \mathrm{v}, 24 \mathrm{v}, 32 \mathrm{v}$, $40 \mathrm{v}, 47 \mathrm{v}, 55 \mathrm{v}, 63 \mathrm{v}, 71 \mathrm{v}, 78 \mathrm{v}, 86 \mathrm{v}, 94 \mathrm{v},[10] 2 \mathrm{v}$.

## Hands

The whole manuscript with the exception of the last two pages is copied in the distinctive and beautiful hand ('lettera bastarda su base cancelleresca': Casamassima Tradizione corsiva 98-99) of Francesco di Ser Nardo di Barberino in Val di Pesa, as the explicit (f. 103v) states:

Explicit liber Commedie Dantis
Alagherii de Florentia per eum editus
sub anno dominice Incarnationis Millesimo
Trecentesimo de mense Martii Sole in
Ariete Luna xiiii ${ }^{a}$ in libra

Ser Franciscus ser Nardi de barberino Vallis
pese curie summe fontis scripsit hunc
librum sub anno domini $\mathrm{M}^{\circ} \mathrm{Ccc}^{\circ} \mathrm{xxx}^{0} \mathrm{vii}^{\circ}$


Francesco di Ser Nardo, a professional scribe, is the copyist of another important early manuscript of the Commedia, ms. Gaddiano 90 sup. 125 in the Biblioteca Medicea Laurenziana [Ga], dating from 10 years later (the relationship between these two copies, and their relationship to the mid-century manuscripts of the so-called 'gruppo del Cento', has been exhaustively studied: see Marchesini $I$ Danti, Vandelli Il più antico testo; Boschi Rotiroti Codicologia trecentesca); he is
also the copyist of Alberto della Piagentina's vernacular translation of Boethius (Consolazione della filosofia) in ms. Riccardiano 1523. ${ }^{134}$

This is a very clean copy of the poem, with very few slips and very few (mostly insignificant) corrections (see Triv Transcription Note). Savino L'autografo virtuale evocatively reconstructs what Dante's autograph might have looked like using 'lo stupendo Trivulziano 1080 ' as a basis. ${ }^{135}$

## Linguistic character

Florentine: a minutely detailed analysis, based on a sample of 30 cantos, is offered in Geymonat Sulla lingua; ${ }^{136}$ the findings for Triv are summarised on p . 375 and in a series of comparative tables in an Appendix to the article. ${ }^{137}$ Precisely because of its marked Florentine linguistic character, as well as its antiquity and the quality of its readings, this manuscript has played an important role in the history of textual studies of the Comedy. Antonio Lanza, following the procedure recommended by Bédier, based his 1995 edition of the poem on Triv 1080 alone because in his view it is the 'best manuscript' (see Lanza La Commedia).

[^71]
## Illumination

The opening page of each cantica has an illuminated capital letter and a pictorial border. In Inferno this figurative border occupies the left-hand and bottom margins, in Purgatorio the bottom margin only, while in Paradiso it frames the entire page. These are the earliest illustrations we have of the Commedia. The illuminations are attributed to the Master of the Dominican Effigies (Salmi Problemi figurative; Breiger-Meiss-Singleton Illuminated Manuscripts I 280-81); Painting and Illumination 56-83; Dizionario biografico dei miniatori 560-62).


Initial letters of the remaining cantos alternate in red and blue. Initial letters of terzine are marked in yellow.

## Rubrics

The rubrics are of type $a$, as described in Norme 17-18. The rubrics as they appear in the Edizione Nazionale are those of Triv with some small modifications (see Petrocchi Introduzione 472 n .1 ); in the second edition of the $E N$ the rubrics are slightly amended and are based more closely on Triv ( $E N^{2}$ Introduzione vii; see Fumagalli Osservazioni 403-405).

## Date

As stated in the explicit quoted under Hands, the manuscript is dated 1337. It was copied in Florence.

## Provenance

The manuscript belonged to the library of Gian Giacomo Trivulzio in the early nineteenth century, and from there passed to the Biblioteca Trivulziana.

Select Bibliography
Petrocchi Introduzione 85-86; Porro Catalogo 106f.; Marchesini I Danti 21-42; Norme 16-18; Rocca Il Codice Trivulziano 1080; Vandelli Il più antico testo 111144; Santoro I codici miniati; Salmi Problemi figurative 177; ED III 27; Brieger-Meiss-Singleton Illuminated Manuscripts vol. I, 280-81; Roddewig CommediaHandschriften 189-90; Petrucci Storia e geografia; Casamassima Tradizione corsiva 98-99; Kanter Painting and Illumination 56-83; Lanza La Commedia; Savino L’autografo virtuale 257-65; Natale Divina Commedia; Bertelli I codici 408-21; Manni Il Trecento toscano; Dizionario biografico dei miniatori 560-62; Geymonat Sulla lingua 331-86. Further bibliography in Petrocchi Introduzione, Roddewig Commedia-Handscbriften, Bertelli I codici.

Witness descriptions: Urb
Name and Location
Città del Vaticano, Biblioteca Apostolica Vaticana
Ms. Urbinate latino 366 (Roddewig n. 691)
Contents
The Commedia:

- Inferno ff. 1r-60r (60v blank)
- Purgatorio ff. 61r-121v
- Paradiso ff. 122r-183v

The text is complete. There is a series of Latin glosses on Purg. xxviii and xxix, and a small number of scattered glosses elsewhere in the text, but otherwise the codex is free of commentary. The quality of the text in this manuscript has long been recognised; see especially Petrocchi Antica tradizione and Introduzione 88, where the editor of the Edizione Nazionale speaks of 'l'intrinseco pregio di trasmettere, talvolta da solo, ... lezioni di notevole qualità'.

## Materials

Parchment

Page Size
$305 \mathrm{~mm} \times 207 \mathrm{~mm}$

## Format

A single column of text, usually 13 terzine to a page, with wide margins. Urb is one of only two antica vulgata manuscripts which present the text in this way (the normal mise en page is two columns). ${ }^{138}$

## Collation

$1-23^{8}$
Pages are numbered in the top right-hand corner of the recto page. There is a duplication of numbering on three folios: the sequence is $13,14,13$ bis, 14 bis, 15; and 71, 71 bis, 72.

Hands
The text is copied in a very clear littera textualis 'semplificata'. The glosses, as noted, are in a later hand, as are the rubrics, and the alternative readings registered in the final cantos of Purgatorio and in Paradiso.

## Linguistic character

The linguistic character of the text is emiliano-romagnolo, as reflected in forms like fioritti, gioncbi, puotti, Bilacqua, Fiesoli, undice, anetra, angosia, basiato, asai. A full account is given in Sanguineti Comedia lxv-lxvii.

## Illumination

There are illuminated initials at the beginning of each cantica. Initials at the beginning of each canto are alternately red and blue; initials of each terzina are marked in yellow.

[^72]
## Rubrics

The short Latin rubrics are by a different, slightly later, hand, inserted into spaces left for them.

## Date

The manuscript was copied in 1352, as recorded in the explicit: Explicit Comedia Dantis Alagherii florentini. 1352. 16 marcii on f. 183v. Moore Contributions 644 expressed reservations about this date, but it is now generally accepted as accurate.

Provenance
The codex belonged to the Montefeltro library (subsequently the Della Rovere library) in Urbino, which was acquired by the Biblioteca Apostolica Vaticana in 1657.

## Select Bibliography

Moore Contributions 644; Petrocchi Introduzione 87-89; Stornajolo Codices Urbinates I, 336; Roddewig Commedia-Handschriften 299; Romanini Manoscritti 49-60.

## ili. General Transcription Note

## Introduction

Transcribing a manuscript copy of a medieval text into computerised form is a process which involves both decoding and encoding: decoding the original to establish as accurate a version as possible of what the scribe wrote; encoding the resulting transcription in order to produce a display which is as informative as possible for other scholars. ${ }^{139}$ The decoding calls on the skills of the palaeographer, the codicologist, and the textual critic; the encoding calls on the very different skills of the computer programmer. The interface between these two areas of expertise is the tagging system in which the transcription is marked up: ideally the tagging system will accurately represent the textual substance of the original with all its varied features, in a way which enables its effective display on the computer screen, and it will also facilitate comparison with other copies of the same text and analysis of the results of that comparison. Appendix C describes the two tagging systems used in the preparation of this DVD-Rom and web site, both the Collate tagging used by those preparing the transcriptions of the manuscripts, and the XML tagging used to create the on-screen display from those transcriptions.

## The methodology of the transcriptions

The general points made here about the methodology of the transcriptions are developed later in this Introduction in the Transcription Notes for each manuscript, which elaborate on particular problems individual witnesses may present to the transcriber. In addition, the notes to each transcription clarify

[^73]and comment on difficulties and anomalies case by case as they are encountered in each manuscript. Those notes are found at the foot of the page at the point where the difficulty arises.

## Diplomatic transcriptions

The transcriptions of the Commedia manuscripts offered on this DVD-Rom and web site are diplomatic transcriptions except in the following respects: they do not record manuscript punctuation; and they make no distinction between $j$ and $i$, treating $j$ as simply an alternative form of the letter $i$, and transcribing both as $i$ ( $u$ and $v$ however are transcribed exactly as they appear in the manuscripts). The punctuation can of course be checked directly on the images displayed on screen alongside the transcriptions.

## Different letter forms

The transcription is graphemic and not graphetic. Different forms of the same letter are not recorded: thus the distinction between long and short $s$ is not retained, and nor is the special form of $s$ which occurs in the final position in a word in some manuscripts; the same holds for other common variant letter forms within a single manuscript, such as $a$. In ms. Triv, where aesthetic considerations of spacing and variety seem clearly important, there are two forms of the letters $f, m, n$ and $s$, three forms of the letters $g, r$ and $v$, and four forms of the letter $l$. (See Ms. TransCription Notes: Triv for a fuller account of these variant forms.) The distinction between $z$ and $c ̧$ has been observed.

## Word separation

When words are run together in the manuscript we have chosen to separate them in the transcription, using Petrocchi's text as our model. Thus sichimiriscossi

## fintimeriforfi

Inf. iv 2 Triv is transcribed si ch i mi riscossi and sicomellieran

## ficomellerny

Purg. xxix 50 Triv is transcribed si com elli eran. This word separation ('lo scioglimento della scriptio continua') has the great advantage of making it much easier for readers of the transcriptions to understand them (some manuscript spacings can be disconcerting at first glance: co mom = com om Triv Inf. xxxiv 80). A practical decision was therefore made early on to use Petrocchi as a base text for this aspect of transcription: our practice in this as in other respects is fully in conformity with the Società Dantesca Italiana's transcription guidelines for Dante manuscripts (available in Italian and English on their website danteonline.it).

## Abbreviation signs

 the opening lines of Purg. ix in Rb .

## Ambiguous or puzzling abbreviation signs

Occasionally an abbreviation sign is ambiguous or puzzling: the forms are then recorded as they appear in the manuscript, and are accompanied by an editorial note.
eg. Ham Inf. i 66 hō


This could be hom or homo since the abbreviated form with a macron is used by this scribe where either form is required metrically (here bomo, but at Par.
xiii 113
bom).
eg. Ash Inf. iii 40


This could be Cbacciarli or Chaccianli since this scribe uses the tilde abbreviation sign for both $r$ (as at Inf. v 116 $\qquad$ martiri) and $n$ (as at Inf. iii 90 ทัO non).

## Inappropriate abbreviation signs

Sometimes abbreviations are inappropriate: either superfluous (because the word is complete with no abbreviation sign), or misplaced (the sign is in the wrong position, eg. over the wrong syllable). Superfluous signs are represented just as they appear in the manuscript, or (where they merely duplicate a letter already expressed) mentioned in a note. For example:


Misplaced signs are likewise shown as they appear in the manuscript. For example:
Ash Inf. xxviii 79 विश̄च sāra
The displaced macron makes it impossible to be sure that the reading is saran. Rb Purg. iii 27 ábrototio dā braditio
The macron has been placed over the wrong letter $a$ : the reading should be $d a$ brandizio.
Ham Inf. xviii 125 ภาม ข1๋ ma nō
The position of the macron and the spacing of the words suggests the reading $m a$ non instead of the required $m$ anno.

Triv Inf. xxx 126
minfarcia. mīrifarcia

The scribe has placed the macron over the wrong letter; it should be over the second $i$ to give the reading mi rinfarcia.

## Missing abbreviation signs

Where occasionally an abbreviation sign is missing, the word is transcribed as it stands; a contemporary reader might well have taken some of these omissions in his stride, just as we would a misprint in a modern edition. eg. Rb Purg. ix 14

## Doubtful readings

The grey typeface is used for uncertain or doubtful readings: where a reading is simply not clear; where a reading is fully legible but difficult to fathom; or where a letter form is dubious.

The transcription mi di required by the context is in grey typeface since the letter shapes and spacing would seem to suggest the reading nudi.

Some of the manuscripts have certain pages and passages which at first glance seem very difficult to decipher. However the final check for all manuscripts was done by the editor against the original codex, and these passages always proved recoverable when seen in the original.
eg. Rb Purg. xviii 12-13 (f. 144v)


Ham Par. vi 64-69 (f. 71r b)


Ham Par. iii 73-84 (f. 68v a)

| Bai $b$ ahd mo cefar viu fupeme fr cifrocer limefir oiffir <br> Whinte motus de quinc cene <br>  <br> Mie thenyta equat fe <br> T. Lifla nitiva len rman <br> 1 It cfi miale ineff learu offe <br> teltafe terneo alla orimina uogla <br>  <br> vid. sume mo fún ciforín ingla <br>  <br> omve Atere dinforrobler näugla |
| :---: |

Spelling and formal variants
The transcriptions register all spelling and formal variants exactly as they appear in the manuscript.

## Scribal corrections

Scribal corrections of every kind have been scrupulously recorded in the transcriptions.

## Cancellations and erasure

Scribal cancellations can take several forms, and all are reflected in the transcription display. Underlining is represented by underlining:
eg.

Cancellation with underdots is represented with underdots:
eg.
come come Triv Par. xxxiii 118.
Words enclosed within dots to indicate cancellation are likewise transcribed as underdots:
eg.

as are words where the dots are placed discreetly within the letters:
eg.
1201
uọ
Rb Purg. v 31.

Words which are struck through are displayed in the transcription with a bar through them:
eg. $\square$ per la costa Ham Purg. v 22.

## Erased readings: unrecoverable

Where a reading has been erased and it cannot be recovered, even with the help of an ultra-violet lamp, the transcription is [....] with the number of dots within the brackets corresponding to the number of letters which seem to have been erased. Most of these unrecoverable readings are to be found in LauSC, which has been corrected over its whole length with erasures and rewritings both in the text and in the margins. The original unrecoverable erased reading is greyed
out while the new reading is in green. In general blue indicates an original reading and green a correction by a later hand.
eg.


LauSC Purg. xii 48

Cancelled incompletely executed letters similarly appear as [.], even when one can make an educated guess at what letter it was the scribe began to write.

## Erased readings: recoverable

Where an erased word can be recovered, either because the erasure has not entirely eliminated it or with the help of an ultra-violet lamp, the transcription shows the erased letters or words on a greyed out background. Again the blue typeface indicates the original reading. Thus:

Ash Inf. i 65.


## Text cancelled with vacat

Where the scribe cancels a line or passage by enclosing it within the split word $v a$... cat, the display reflects the manuscript layout with the syllable $v a$ at the beginning and the syllable cat at the end of the cancelled segment, as in these examples.

```
vi. C of toryanman piz lo rasc)eno totav
        Envgris 117 bivo alloprillo punto
```



LauSC Inf. vii 31-33 (f. 13v)
In this example the text has been struck through as well as signposted vacat.

Rb Purg. i 32-33 (f. 106r)

Here the scribe has repeated two lines and cancels them as discreetly as possible.

## un lito chatiouto nifin hayngul unticl mozecho clifola ovinoor

Rb Inf. xxvi 103-4 (f. 80r)

Here the scribe cancels the last two lines on the page because they are repeated at the top of the next page. This is a technique used more than once in this manuscript to fill the allocated space when the number of lines of text on the page has been miscalculated. See Witness Descriptions: Rb and the bibliography listed there. For aesthetic reasons in Rb the $v a$... cat is made as small and unobtrusive as possible, but it is nonetheless clearly visible in the digitised images.

Where lines are repeated and then cancelled, as in these examples, the cancelled lines in the transcription will have the same line number as the undeleted text, followed by the letter $r$ for repeat.

## Additions

Additions to the text, if they are interlinear, appear in the transcription between sloping bars at the point at which they were intended to be inserted: $\backslash /$.
eg. interlinear Ash Inf. i 72

## falfilougrecti - falsi \et/ bugiardi

If the additions are marginal, they appear in the appropriate margin, eg. LauSC Purg. xxiv 58


Here marginal ben rectifies an omission, while marginal noue is an alternative reading.

If a scribe omits a word in the course of transcription but adds it immediately at the end of the line with an insertion marker, it is displayed in the margin thus:

Ham Inf. iv 81 torna


Occasionally an interlinear addition is simply a repetition of a word in the text, made to clarify a slightly blotted word which is not clear.
eg. Ham Par. xxxi 45 stea.

## - ffere manorir chomegh fra

e spera gia ridir chom egli stea \stea/

In cases like these the added word is in green to signify the second or correcting hand.

Missing lines added above or below the main body of the text are transcribed as they appear in the manuscript, with an insertion marker corresponding to the one used in the codex:
eg. Rb Purg. xviii 61


The line is at the bottom of the page with an insertion marker to indicate the point at which it should be reinstated.

LauSC Inf. x 124-26

```
% & and quel prizala cmemmpaitai mimico.
```



```
    ct howr attindt yut!ct-D21330 ?loitoy
```




```
    al lar rapzam ditha nútel iluíaggav.
    \lambda
```




```
        的 un fantuce cloaunna utallo-ficke।
```



```
    Equluctt. cavto. X. infenm.
€ ©-\mp@subsup{|}{1}{}\mathrm{ rimofle. rpor cofiandando}
    midifl:/g de fe tu fifmavezto.-
    %0 fatiffer alfyo domando.
```

These lines are added at the foot of the page with an insertion marker at the appropriate point.

## Substitutions

Where a correction involves a substitution, i.e. where the corrector cancels something and replaces it with something else, the transcription registers this with the cancelled word or letters within square brackets in blue followed by the replacement letters in green, thus:

Rb Purg. xxxii 33

## cifmuli Ten[t]peraua

(Tentaua becomes Tenperaua);
Rb Purg. xviii 69

## niox inta mor[r]talita <br> (moralita becomes mortalita);

Rb Inf. xvi 132
ยี่ายท $[\mathrm{si}] \mathrm{m}^{\backslash \mathrm{a}} /[\mathrm{c}]$ turo ${ }_{\text {(sicuro becomes maturo). }}$

In general, the colour blue, as noted, indicates the original reading, the colour green the corrected reading. A special case is presented by ms. LauSC which has been systematically corrected over its whole length, with readings erased and then replaced, sometimes more than once. The transcribing of LauSC represented a special challenge to our transcription system; a fuller account is given in LauSC Transcription Notes.

Very occasionally a letter consisting of minims ( $m, n, u$ ) is changed by the erasing or striking through of a single minim, as at Rb Par. ii 72 where the first minim of $m$ is erased to create $n$, and Mart Par. xx 108 and 109 where the final minim of $m$ (speme) is struck through to create $n$ (spene). These corrections are represented $[\mathrm{m}] \mathrm{n}$.

## Reordering of words in the line

Where the scribe changes the order of words or phrases in a line by inserting numbers or letters above the words to indicate the revised order, the transcription reflects the manuscript layout exactly.
eg. LauSC Purg. ii 86

## ainolty alliaz arbicial

## conobbi ${ }^{2}$ allor $^{1}{ }^{1}$ chi era ${ }^{3}$

The phrase conobbi allor chi era is here changed to allor conobbi chi era.

## Spaces left blank

The very few spaces left blank in the text or rubrics are represented by square brackets thus: [ ].
eg. Ham Par. xiv 125


Here the second half of the line is missing, with no sign of erasure.
eg. Triv Purg. iii rubric

##  <br> 

The scribe has left a blank space after Manfredi di [ ]

If the scribe works around a hole in the parchment (eg. Ham Par. xx 10), or a blemish (eg. Ash Inf. xiii 45; Purg. viii 44; LauSC Inf. xix 133), or a wrinkle (eg. Ash Par. xxii 112-14), there is an editorial note to this effect but the space is not represented in the transcription. Equally, if a space is left between words in order to avoid writing over the tail of a letter from the line above, this space is not represented in the transcription.
eg. Triv Purg. viii 87 presso a lo stelo


## Spaces left blank subsequently filled

There are occasional cases where a space left blank by the original scribe is subsequently filled, either by the original scribe himself who comes back to revise and correct his copy, or by a later hand. Additions of this kind appear in the transcription in the form [ $\backslash /$ ], the blue square brackets indicating the original space left blank and the sloping brackets in green showing the word or phrase inserted by the correcting hand into that space.
eg. Ash Purg. iii 50

[^74]```
enve Guona 23mmongna e noi [\buona Ramongna/]
```

Ash Purg. xii 55

## el atlo frempio. el crudo [\scenpio/]

Missing lines or hybrid lines
Very occasionally a scribe has botched a terzina by conflating two lines and omitting parts of them.
Rb Par. xv 131

## He Diciuxtm a coliz zolsc oftello

Here the scribe has copied the first part of line 131 (Viuer di citadini) and the second part of line 132 (a cossi dolce ostello), creating a hybrid line and omitting two half lines. An editorial note explains the situation.

RbInf. ii 53

## Exomina michramo cozterc cpraina

The scribe has conflated lines 53 (cortese e bella) and 56 (soave e piana) to produce cortese e piana, and has omitted lines 55-57. Attention is drawn to the missing lines in an editorial note.

The scribe of Ham omitted a tercet at Purg. xxviii 95-97:

Line 98 follows directly after line 94 . The scribe of Rb omitted a tercet at Par. xi 70-72. The omission occurs at the column break on folio 76r, with line 69 at the base of the first column and line 73 at the start of the second. Editorial notes draw attention to the slips.

## Interpolated lines

Ham Inf. xxi, f. 20r a: three lines are inserted here between line 138 and the final line of the canto, 139. These lines are transcribed but not numbered. A striking case of extended interpolation in $\mathrm{ms} . \mathrm{Rb}$ is discussed in the Transcription Notes to that manuscript.

## Wrapped lines

Sometimes for lack of space a scribe will squeeze the last word or part of a word on a line into a space immediately above or below. Thus: Rb Purg. xviii 71

## clatanccelitate cex moz chx c゙to autot fal salcende

Rb Purg. xxv 3
> fasipro
> Alz 1 notcifotpro Iceabroobmenge inochanotrato

## notte a lo $\downarrow$ scorpio

Here the word scorpio appears three lines above in a space at the side of the rubric. The transcription in cases like these shows the word or the relevant part of it with an arrow indicating where it belongs.

## Glosses

Occasional glosses on single words or phrases are included in the transcription, in green, in the margin or between the lines.
eg. interlinear
Ash Inf. xix 57

# la bella cioe la chiesa di roma donna e poi di farne stratio 

Ash Purg. xii 25

## Vedea colui che fu nobil creato Luciferum

eg. marginal
Ash Purg. ix 10

## Quand ${ }^{\backslash i / o}$ o che meco auea di quel d adamo idest carne

Ash Inf. xix 96
al luogo che perde 1 anima ria idest iuda

## Commentary

Jacopo della Lana's commentary which surrounds the text on every page in Rb , and occasionally fills whole pages leaving room for no text at all, has not been transcribed. The commentary is linked to the text with small interlinear alphabetical letters in the text at the point being commented on, matched to the same letter in the margin at the point where the commentary on that word or phrase begins. These letters have not been transcribed. The partial commentary on the opening pages of Ham has not been transcribed.

Editorial notes to the transcription
Editorial notes which comment on points of interest or difficulty in the transcription now appear at the foot of the page; occasionally they record scribal notes and comments which are more than simply glosses, as here:

## LauSC Inf. xviii 85

(1) watito anzerto varale andow
 $l_{1}$ coldor ad monton painat finc.

## Identification of correcting hands

The distinction between various correcting hands is made within the transcription (see The Tagging System), and can be seen in the transcription display by selecting from the drop-down menu in the top right hand corner. The identification of correcting hands appears in the collation, where corrections are identified as being by c1 (where the correction is made by the original scribe in the course of copying, or at any rate it is impossible to be sure that a second scribe is involved) or c2 (a clearly identifiable later correcting hand), and occasionally even c3 and c4. Detailed discussion of the correcting hands to the various manuscripts can be found in the Transcription Notes for each witness.

## Rubrics

Rubrics have been transcribed and normally show in red. The guide letters for the rubricator, visible in the margins of many manuscripts, have not been transcribed, unless the ornamented capital has not been executed, in which case they are transcribed as lower-case.

Catchwords and running heads
These have been transcribed and appear in the display, in red when appropriate.

## Display limitations

We put considerable effort into trying to make the display of the transcripts attractive, informative, and intuitive. We are pleased to report that the limitations of browser technology which defeated us in a few cases on the old web site are no longer a problem. Thus:

- we are able to display strikethroughs in green, so they match the green used everywhere else to signal alterations in the manuscripts;
- the line break that appeared in the long first line of the initial rubric in Ham at Inferno iat some levels of text zoom no longer appears;
- however the fault in the image of f. 29 v in Ash (Inf. xxx 79), apparently an artifact of the capture process, is still there.


## IV. Manuscript Transcription Notes

## Transcription notes: Ash

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

The text of Ash has been corrected from beginning to end by several hands, identified by scholars as the $\alpha$ hand (the hand which copies the Commedia), the $\beta$ hand (the hand which copies Jacopo di Dante's Capitolo), and other indeterminate hands.

Many of the interventions are minute retouchings aimed at clarification rather than alteration. Thus where an interlinear letter has been added over a word, these added letters usually do not alter the reading, but merely clarify a badly executed or blotted original. On f. 18r, for example, we find in column a at line 114 a $d$ has been added over priuadi p2111at1 (Inf. xviii 114); in column b at line $13 e$ has been added over le lecolve
(Inf. xix 13), at line $15 r$ has been added over era cla (Inf. xix 15), and at line $22 a$ has been added over ciascun व解位 Inf. xix 22). In these cases the interlinear addition is recorded and displayed in the Transcription file $\operatorname{priuad}^{\backslash \mathrm{d} / \dot{i}}$.. le ${ }^{\backslash \mathrm{e} /}$ coste $\mathrm{er}^{\backslash \mathrm{r} / a}$ cia ${ }^{\backslash /}$ scun , but as the retouching does not alter the reading no variant appears in the Collation. This same hand makes some genuine corrections to the text, as for example at f .3 v Inf. iii 96 , where the addition of $n d a$ in interlineo changes di mare into dimandare.

The main problem the transcriber of Ash faces is caused by the poor quality and condition of the parchment throughout, particularly on the hair side of the folio. Whereas it is often clear that irregularities in the size and shape of letters and words indicate that a reading has been added over an erasure, this is not always so: many such irregularities appear to be simply the result of the ink not taking well on the rough parchment surface. Some examples will illustrate the difficulty. On f. 4v (Inf. iv 101-2), for example, loro certainly appears to be over erasure, whereas the final letters of sexto in the next line, while very similar in appearance, are probably not.

## chefimifenno telli is20 fhich fuchio fui fervolancotato fenno.

Similarly on f. 4r b (Inf. iv 74) the words questi chi sono in column b are certainly written over erasure, whereas in column a the words -bo eran sospesi (Inf. iv 45) are probably not a correction, but it is rather the uneven surface of the parchment which has caused the apparent irregularity.


Compare also the word tra at Inf. iii 3, another striking case where the surface of the parchment is so imperfect that what is probably the original reading looks as if it might be a correction.

## perme financlectems tolore. perme fina o in poutagrate . Iftur molle lako mio furtore.

(f. 2v)

We have transcribed as corrections only those cases where we are certain there has been an erasure; less clear cases, as in this last instance, are mentioned in the notes to the transcription, which appear at the bottom of the page. Inevitably there is rather a large number of such notes, since problems of this kind occur throughout the Inferno, though much less frequently later on.

There are some cases of corrections over erasure where the original reading can be confidently guessed at, but is not actually visible, even with the ultra-violet lamp (eg. at Inf. ii 121 the original reading is probably perche क) . In these cases we transcribe as unreadable but mention the likely original reading in a note.

Many of the corrections made to the text are clearly the work of the original copyist, who self-corrects, for example, when he twice anticipates a line on f . 22 v :


Inf. xxiii 73-81
or when he adds in the margin a word he has inadvertently omitted:
$\therefore$ quer $\sqrt{1}$ raron droctol pmeacello

Inf. xxi 70 (f. 20v a)
or makes a correction to the text:

## miluce <br> (145 pol leufu mat manbafica

Inf. xxiv $52(23 \mathrm{v}$ a)

All the cancellations done with very fine dots and a fine stroke through the letters or words seem also to be by the original hand:

## thtucoze.

$$
\text { Inf. xxi } 112 \text { (f. 20v b) and }
$$

Whereas some of these corrections were obviously made in the course of writing, others may have been executed at a later stage, albeit by the original scribe reading over his copy. Some of the interlinear letters added to clarify a blotted or unclear original may also be in his hand, and added at this checking stage. All these corrections are tagged in the transcription as Ash-c1.

Everything which is not by the original copyist is transcribed as Ash-c2. Ashc2 thus includes both the $\beta$ hand and the various hands that tinker with the text subsequently, which cannot be securely and usefully distinguished one from another. Many of these subsequent interventions are in a thicker pen and a coarser hand, as at
mectemo faligiofo manto nor cunolgemmo ancoz purama mắba colluzo infiematétletrifto pánto.

Inf. xxiii 61-69 (f. 22v)
where the corrections in lines 61 and 69 are clearly not by the original scribe, whereas the correction at line 65 certainly is.

The same or a similar later hand adds the glosses at f .18 v a


Inf. xix 52-57
and the additions in the right margin at f .39 vb


Purg. vi 7-12
and makes a number of other corrections.

Inevitably it is not always possible to be sure of the ascription of every correction either to c1 or c2, but given that a choice had to be made we have ascribed doubtful cases to what seemed to us the more likely probability. The transcriptions should be read bearing this margin of uncertainty in mind. For a more detailed account of the corrections to Ash which acknowledges the difficulties see the article by Gabriella Pomaro, which speaks of 'l'alta presenza di microinterventi di dubbia cronologia'. ${ }^{140}$ Although Pomaro's expert eye enables her occasionally to speak with confidence of attributions where we, in

[^75]truth, are less sure, we can unequivocally confirm her conclusion that 'Gli interventi sicuri della seconda mano non sono tali da permettere un aggancio ad altre zone della trasmissione testuale (come accade, invece per $\mathrm{La}_{1} / \mathrm{La}_{2}$, cioè per la scriptio prior / posterior del Landiano)'. ${ }^{141}$ For the purposes of stemmatic analysis it is the original text which is of interest here.

We have not included in the transcription either the small guide letters or the tiny canto numbers above the space left for the ornamented capital (sometimes Roman numerals, sometimes Arabic) which served as a reminder to the rubricator at the beginning of each canto, except where the rubrics have not been executed: here we include the canto number in the transcription (but only once even if, as occasionally happens, it appears twice, as at


Par. xi


[^76]There are occasional notes or glosses in the margin, some attributed by Pomaro to the $\alpha$ hand, as at f. 46v Purg. xii 121: idest vi pechata mortalia. ${ }^{142}$ These appear in green in the margin of the transcription. Where these marginal notes or glosses do not fit comfortably into the margin, they can be scrolled to see them in their entirety. Other notes are attributable to later hands, as at Purg. viii 88: teologie; not all of these later notes are included in the transcription (see Pomaro Appendice 325 for a list).

In accordance with our usual transcription practice described in the general note on transcription, word division and spacing is adjusted to match the Petrocchi base text, except in a small number of very striking cases, as at Inf. iv 120: me falto where the transcription is me salto. On several occasions the scribe writes -ff- where we would expect -sf- (f. 39v Purg. v 134; f. 45v Purg. xi 126). This seems to be a slip of the pen, and we regularise to the correct form. We have been especially careful to double check our transcription on the small number of occasions where it does not accord with that of Petrocchi, as at f .60 v Purg. xxvi 118:
preie virimana
where Petrocchi does not register prese for prose; f. 73v Par. v 83: r. where Ash reads con with Ham and not $e t$ as registered by Petrocchi; and f. 80r Par. xi 136 fier where Ash reads fie and not fia. In any case, the reader can always check the transcription directly against the manuscript. Petrocchi sometimes registers corrections where the original reading can be confidently guessed at, but is not actually visible, even with the ultra-violet lamp (as explained above, in these cases we transcribe as unreadable: [...]).

[^77]Pomaro points out pertinently that there are many more interventions by the correcting hand(s) in Inferno than in the later cantiche: 'il Paradiso è in pratica 'pulito'; questo potrebbe confortare l'ipotesi di una stesura modulare del testo con un finale completamento con la terza cantica ed una revisione accurata della prima. Ai filologi spetta valutare se esiste la possibilità di cambio di antigrafo tra le tre cantiche e se gli interventi di correzione - in realtà sensibili solo per la prima cantica - possano aver reso omogeneo un corpus ibrido.' While the hypothesis about a 'stesura modulare' of the text is interesting and plausible, we are confident that the notion of a possible change of antigrafo can be categorically ruled out.

## Transcription notes: Ham

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

The parchment of ms. Ham is rather poor quality, not white and not smooth; some pages are very badly rubbed (eg. f. 23v b, f. 68v a, f. 71r b, f. 75r b, f. 89v).


Inf. xxv 31-111 (f. 23v)

The hair side of the parchment in particular seems prone to rubbing: perhaps the ink takes less well on it in the first place. But even where the ink has been rubbed off the surface of the page, as it often has, the stain of the ink is still perfectly legible on the parchment in the original.

There are two categories of correction in Ham and they can be very clearly distinguished one from another. There are corrections made by the scribe as he was copying, as when he strikes through a word he has inadvertently repeated or anticipated (these are identified as Ham-c1 in the Collation); and there are corrections made with a very fine pen by a tiny later hand (Ham-c2 in the Collation) - it is this second hand which adds $n^{\circ}$ in the margin from time to time. There are no other corrections, not even to substantial errors like the writing of terzine in a garbled order (Inf. xxv 31-36: f. 23r b), or the occasional omission of a whole terzina (Purg. xxviii 95-97: f. 59r and Par. xi 70-72: 76r a), or indeed the insertion of a spurious terzina (Inf. xxi, between lines 138 and 139: f. 20r a). It is perhaps surprising that these larger errors were not spotted and rectified, as they so obviously fail to maintain the rhyme scheme, but the copyist of Ham is of course not a professional scribe.

There are occasional interlinear additions to clarify rather than alter a reading: for example, at Inf. i 34 (f. 1r a) there is a tiny interlinear non to clarify and confirm the reading on the line $1 \mathbf{W m}$. These are recorded in the transcription and appear in the transcription display, but do not appear as variants in the collation.

The scribe seems to have a preference for $n$ rather than $m$ before bilabial plosives $p$ and $b$ when he writes words which contain then them in full (thus 21 v a Inf. xxiii 34 conpie), but he does also use forms with $-m$ - in this position (thus f .21 r a Inf. xxii 121 tempo and 135 campasse). We have resolved abbreviated forms with $m$.

The scribe's use of macrons presents occasional problems. It is difficult to be sure, for example, whether he intended the abbreviation hō to signify bomo or bom; mostly what is required metrically when he uses it is homo (uomo) and sometimes either form (uomo or nom) would do; but just once he uses it where what is required metrically is bom, though usually in these cases he writes the word in full (uom, uon, uhon). Because of the difficulty of resolving the abbreviated form with certainty, we represent it in the transcription as it appears in the manuscript. Equally, where macrons are misplaced and it is therefore problematical whether the scribe himself understood (or a reader would have understood) the sense required, we have retained the macron in the transcription without expanding it, as Giorgio Petrocchi did in the same circumstances.

Petrocchi was unable to examine this manuscript directly. He worked from a microfilm and a collation made by Giuseppe Vandelli against an early printed text now owned by the Società Dantesca Italiana. Our transcription by contrast was checked throughout by the editor against the original manuscript in Berlin: on the small number of occasions where our transcription differs from Petrocchi, as for example at f . 75 r b Par. x 91 where Ham has pianete (and not piante) pratere, we have been particularly careful to ensure its accuracy (there are about twenty such cases).

Occasionally the scribe starts to write one letter then self-corrects to another as he is writing. In this situation there is no 'original reading' and 'corrected reading': to register them as such would give too much weight to something which is trivial and has no textual significance. We therefore generally do not register these in the transcription, but simply draw attention to their existence in this introductory note (eg. at f. 92r Par. xxvii 76 where the last letter of assolto has been changed from an $a$ ).

Finally we may note that there is a rather high incidence of error in the rubrics in this manuscript: a conspicuous saut du même au même in the rubric to Par.
vii (f. 71v b), garbled versions of a number of names (f. 73v b: Par. ix), and the rubric for Purg. xxvii has been copied instead of that for Inf. xxvii. Tiny canto numbers are often visible under or alongside the rubrics. These have not been transcribed. The rubrics were added after the text was complete; thus at Purg. xxxii (and elsewhere) the rubricator writes around the text and into the margin since insufficient space has been left.

## Transcription notes: LauSC

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note, and with the section on Hands in the description of the codex.

The base text of this manuscript, i.e. the text before it was subjected to correction (LauSC-orig in the Collation), is very clear and presents no particular problems for the transcriber. There is a lot of natural variation in ink colour in the course of the writing, as for example on f. 45v:

Inf. xxiii 40-41

##   <br> or f. 83v:

Purg. viii 37-38
or f. 6v:

Inf. iii 123-27

or f. 20r:

Inf. x 73

## 

or f. 24 r :

Inf. xii 104.

## 

Ink colour alone is of no significance in determining whether something is a later addition or not. The same thing is true to a lesser extent of variations in the size of words.

There are some irregularities in the surface of the paper which the scribe avoids writing on, so spaces do not always indicate erasure, as here:

Inf. xix 133;
and occasionally the scribe has written on the rough surface so that the resulting text looks irregular even though it appears not to have been altered, as at Inf. xvi 66.

## at F - lafima turn topot゙lisa

The entire text has been subjected to the attentions of a correcting hand (possibly working in successive stages or at different times), with words and phrases amended or erased and overwritten in a way which creates a layering of readings. It is not uncommon to have three, and on rare occasions even four,
layers of variant readings, and it is not always possible to be certain of the order in which they occurred. It is thus difficult to give a coherent account of the process of correction across the whole text, although one can usually make sense of any given line and the interventions which have been made to it. We can start our account with the simplest kinds of intervention.

Corrections on the line

## Strikethroughs

Very occasionally a word is struck through because it is clearly metrically superfluous: thus at Inf. xi 18 there are lines through and under the word son.

## 

## Underdots

Very frequent use is made of the underdot to cancel letters. Whereas sometimes the function of the underdot is clearly to eliminate a mistake (eg. to correct a line with too many syllables), more often it seems simply to mark an elision between words, in order to facilitate a correct metrical reading of the line rather than strictly speaking to rectify an error, as here at Purg. xi 100:

## 

Sometimes on two adjacent words the cancelled letter is not the one we might expect. Thus on dissi io it is the $i$ of $i o$ which is underdotted rather than the final $i$ of dissi, but the reading thus created to be understood diss'io; similarly on mi inebriaua at Par. xxvii 3 the $i$ of inebriaua is underdotted

## 

It is very difficult to know if these underdots are all added by the correcting hand; we will return to this point shortly.

To complicate matters further, sometimes an underdot appears to have been added, then erased, but is still visible, making it difficult to be sure of the corrector's intention, as at Purg. xxii 31 materana, where the underdot under the $a$ of ma seems to have been erased and indeed needs to be eliminated for the phrase to make sense. Presumably the $a$ needed to be reinstated when the correction was made on aduera, cancelling the first two letters. And, as we shall see shortly, occasionally there are underdots added to corrected readings, both on the line and in the margin.

## Re-ordering of words

Another kind of correction which occurs quite frequently is the alteration of the order of words in a line, indicated by the placing of interlinear numbers over the words to establish a different order. Again it is difficult to know if these numbers are added by the original scribe who immediately realises he has copied the words in the wrong order and self-corrects, or if they are a later addition.

Here is a simple example:


Inf. viii 11 (f. 15r)
An original gia scorger puoi has been amended to read gia puoi scorger.
Here is a slightly more complicated example:

## 

Par. ii 126 (f. 138v)

Here the first five words in the line are numbered 14253 , signifying that the words siche sol poi tener sappi are to be re-ordered siche poi sappi sol tener. Our transcription shows this situation exactly as it is: in the transcription the words appear with the interlinear numbers over them, while in the collation LauSC-
orig shows siche sol poi tener sappi lo guado and LauSC-c1 shows siche poi sappi sol tener lo guado. There are 34 cases of this kind of correction over the length of the poem. A full list is appended at the end of these Notes.

In the nature of things both these kinds of correction (underdots and reordering of words) can be done very discreetly, and it is simply not always possible to be sure if these interventions are by the original hand or a later one. ${ }^{143}$ This is clearly not the case with our next category of correction.

## Erasure and rewriting

Here is an example of an original reading which has been erased but is still recoverable:


Inf. ix 86

An erased mio is clearly visible here, and is replaced by the added Tironian note at the beginning of the line. More often the replacement reading is added over the erasure; and sometimes in these cases there is a layering of readings: the corrected reading which takes the place of the erased reading is in its turn modified.


Inf. xvi 1

The original reading here was donde (the erased de is very clear under the final $e$ ), replaced by doue, to which an underdot was then added on the first letter, making oue. Here we have three successive readings for a single word in the text.

[^78]Sometimes the underlying (original) reading can be discerned without difficulty, as in these two examples: onde is certainly perche; and ornde. (Inf. xiv 38), where the reading under pazo (Inf. xvii 120) where the reading under pero is again clearly perche.

Sometimes one can make an educated guess at the original. Educated guesses are recorded in the notes rather than in the transcription, eg. at f. 6v: Inf. iii 120 Fhrera the word under schiera may be gente ; at Inf. xii 57 the original reading was probably soglion rolean 144 At other times nothing is decipherable under the overwriting, even with the aid of an ultra-violet lamp, as here:

```
ancor: macefreo
Inf. xiv 130.
```

Marginal variants
Alternative readings in the margin
The layering of readings can become even more pronounced when the margins of the text are used to record variants. Some of the variants are in the same hand as the text itself but most are in a clearly different hand, that of the reviser, as here:


[^79]It is difficult to give a coherent account of these marginal corrections and variants. Some of the variants are alternative readings signalled aliter, rather than outright substitutions, and sometimes a marginal addition itself offers alternative readings: uel ... uel. The following examples show how difficult it is to detect a uniform pattern of correction in these interventions.

Occasionally the layering of readings shows the corrector reverting to an original reading by cancelling or overriding an earlier correction. This seems to be what happens here:


```
Inf. iv 68 (f. 7v)
```

where the marginal variant dal sonno is in fact the erased reading under the corrected reading on the line dal sono. ${ }^{145}$

A similar thing seems to have happened here:

```
111/4 Par. xxii }99\mathrm{ (f. 178r)
```

where it seems that an original $s u$ has been corrected se on the line (by erasing the $u$ and overwriting $e$ ), but subsequently the $u$ has been restored above the $e$ to reinstate the original reading or at least leave it as a possible alternative.

The difficulty of establishing the order of interventions is apparent in this example:

```
fu nfibulito pre loturv fancoo
:Fure fobolith
```

Inf. ii 23 (f. 3r)

[^80]Here there are certainly three stages of correction: an original furo stabiliti on the line is corrected fur stabiliti on the line by the erasing and underdotting of the final o on furo (still clearly visible - this first correction restores 11 syllables to the line by removing the superfluous twelfth syllable). Then fur stabiliti is added in the margin, perhaps to confirm the on-the-line correction (or indeed, conversely, the on-the-line correction may incorporate a pre-existing marginal variant). A final intervention changes the on-the-line reading to $f u$ stabilito by erasing the $r$ of fur and overwriting the final $i$ of stabiliti to $o$. This is a possible sequence, although it is equally possible (and perhaps more likely) that the order was different: furo stabiliti on the line, corrected fur stabiliti and then fu stabilito on the line, with the variant fur stabiliti subsequently added in the margin as an alternative to the corrected on-the-line reading. In cases like this our transcription records the evidence as it stands and points out in a note that the sequence of interventions cannot be ascertained with certainty.

## Erased marginal variants

One pattern of correction occurs quite frequently: variants written in the margin (sometimes in Villani's hand) are incorporated into the line by the reviser after erasing the original reading; the marginal variant is then itself erased.


Inf. xiii 72

Here the original feci has been corrected fece and the marginal variant fece has been erased.

But by no means all cases of erased marginal variants conform to this pattern. Sometimes an erased marginal variant is not the reading which has been incorporated into the line over an erasure, and sometimes when it is so incorporated it is itself then corrected.

##  <br> 11

Inf. xii 49 (f. 23v)

Here the erased marginal variant is et ira, but the reading incorporated into the line over an erasure is et ria (we have labelled these c2 and c3 to reflect the sequence of corrections, which here seems fairly clear - the original reading is not recoverable).

## 

Inf. xii 57 (f. 23v)

The erased marginal variant at line 57 is solean, which has been incorporated into the line over an erased original reading which is not recoverable except for the first two letters so- and the last letter $-n$ (the original reading was probably soglion). But this inserted reading has in its turn been altered by the placing of an underdot under the $a$, creating a further variant solen. Cases like these make it extremely difficult to give any kind of coherent, all-embracing account of the process of correcting the text of LauSC, which mostly seems haphazard and piece-meal, though clearly the reviser had access to at least one different copy of the poem, and possibly to several.

Some marginal variants just make minor changes to the orthography of words. Thus at f. 25v (Inf. xiii 62-64-66)

```
Fita poztru alytoziofo ofitro . .ा nemoz
I
    turta/clazo nv-pizit lezsenc, cpolf.
```




the erased variants are perfectly legible but their incorporation into the text consists merely of changing a $c$ to a $t$ in each case: offitio - bospitio - uitio. The single $f$ in marginal ofitio was apparently of no interest to the reviser who leaves
the double ff of the original on the line.$^{146}$ And here it seems fairly clear that the erased variants were in Villani's hand.

Not all marginal variants which have been erased are decipherable, and this makes it even more difficult to reconstruct the process of correction. There are even indecipherable erased marginal variants where it is not clear which word in the line they might have referred to, as with those in the inner margins on ff. 13 v and 14 r , as here:

```
C lae tuefo lozo dica Nocto lalmmal
```



```
    w"potizelte finm-pofnte uma.
```

Inf. vii 64-66

The simplest way to convey the range of interventions in the original text and the complexity of the resulting textual situation - not to mention the challenge it presents to the transcriber - is to illustrate it with concrete examples, starting with the routine and progressing to the more perplexing.

Some pages are very clean and the corrections are entirely unproblematic.

[^81]
## 

 fitern- horto alpero che límprisect. tive tellento hocelz rime fitaes fifi




che penmellizgan fizmeo bolognen-

en vion farer 10, fitito Ricozter-

 tall fupczera quá fipagar il fyu.。
 chepomizio porciiz nuínolf niodo. соmporo zacza-in filandina polva


$$
a
$$

reithe rimulne mella, pictura
 firloclitioma moolin ?

$$
\sigma
$$




ฟৃ


et muta nome-pez dos-mutal lato.



$p$


vilazchio chepaíu triza ínaclo č tozto.
Purg. xi 73-108 (f. 90r)

Here the variation in the colour of the ink is quite noticeable but not significant. Many corrections are effected by underdotting (there are ten underdots in the first twelve lines alone and nineteen on the whole page), and it is often not possible to tell if the underdotting is by the original copyist or by a later hand. As noted, often the function of the underdot seems simply to mark an elision
between words, in order to facilitate a correct metrical reading of the line (as in Non e ịl mondan rumor, 1.100 and della excellentia, 1.87). There is a single marginal variant fama on uoce, but no layering of readings reflecting repeated interventions such as we find elsewhere.

By contrast, here is a page of LauSC at its most challenging to the transcriber, where sixteen of the 33 lines have been altered, several of them at more than one point, and where several of the corrections are layered, making a total of twenty-four separate interventions on this page alone.


Inf. xvi 1-33 (f. 31r)

As always, the original text is in black, words of the original text where a change has been made are in blue, and additions by a correcting hand are in green.

We have seen that in line 1 an original donde (clearly visible with the ultra-violet lamp) has been erased and overwritten as doue, and that the initial $d$ of this correction has then been underdotted. In line 3 the final $e$ of simile has been underdotted; an unreadable original reading has been replaced by arnie. In line 5 the o of torma has been overwritten as $v$ to make turma. In line 7 the final eno of Venieno is written over an erasure and the final o subsequently underdotted. In line 8 the $l$ of sembli has been changed to an $r$, giving sembri.

In line 11 the first $l$ of dalle has been added to an original da $l e$. In line $13 l i$ has been erased and $s$ added before attese. In line 14 et is overwritten but not altered, and ora is written over erasure (-sse is still clearly visible under the final $a$ : the erased word was probably disse). In line 15 the words disse a costor si uuole are written over an erasure: the whole correction on lines 14-15 may just be a reordering of words. In line 19 the $b$ of bey is written over an erased letter.

In line 20 the $t$ of $e t$ and quando a noi is over an erasure, in line 21 fenno is over an erasure, in line 25 osi of Cosi is over erasure and lo is over erased $i l$. In line 26 the original si che tra loro il collo has a marginal variant si ch a contrario il collo. In line 27 the $u$ of faceua is underdotted and struck through, and the words ai pie have a marginal variant et i pie. In line 30 we have a 3-layered correction: the original reading on the line has been erased and is not recoverable; it has been replaced by el tristo, which in its turn has a marginal variant el tinto, but this marginal variant itself seems to be over an erasure which is not decipherable. Finally in line 33 there is an underdot under the $i$ of inferno.

```
    GIa era in loco [donde]doue s udia il rinbonbo
        de ll acqua che cadea ne ll altro giro
        simile a quel che 1 [.....]arnie fanno ronbo
    Quando tre ombre insieme si partiro
        correndo d una t[o]urma che passaua
        socto la pioggia de ll aspro martyro
    Veni[...]eno uer noi e ciaschuna gridaua
        sostati tu ch a ll abito ne semb[1]ri
        esser alcun di nostra terra praua
    Haime che piaghe uidi ne lor menbri
        ricenti et uecchie da\//le fiamme incese
        anchor men duol pur ch io me ne rimenbri
    A lle lor grida il mio doctor li\s/ attese
        uolse il uiso uer me et [disse] ora aspecta }\mp@subsup{}{}{1
        [.................]disse a costor si uuole esser cortese
    Et se non fosse il foco che saecta
        la natura del loco io dicerei
    E incominciar come noi restammo [.] hey
        l antico uerso e[......]t quando [...]a noi fur giuncti
        [....]fenno una rota di se tucti et trei
    Qual soleano li campion far nudi et uncti
        aduisando lor presa et lor uantaggio
        prima che sien tra lor bactuti et puncti
    C[...]osi rotando ciascuno [il]lo uisaggio
        drizzaua ad me si che tra loro }->\mathrm{ il collo }->\mathrm{ si ch a contrario il collo
        faceụa ai pie }->\mathrm{ continuo uiaggio et i pie
    Et se miseria d esto loco sollo
        rende in dispregio noi et nostri preghi
        comincio l uno [........]el tristo }->\mathrm{ aspecto et brollo e el tinto
    La fama nostra il tuo animo pieghi
        ad dirne chi tu se che i uiui piedi
        cosi securo per lo inferno freghi
```

The difficulty of encoding changes of this scope and complexity is obvious. The main problem for the transcriber is an unresolvable one: that of identifying and distinguishing with certainty the various hands which make the corrections. Our ad hoc solution to the problem is as follows: the original hand which does the first copying of the text is labelled LauSC-orig. Where it is clear that a correction is made by the original scribe (as with instant cancelling on the line of an inadvertently repeated word) we use LauSC-c1 to identify the hand.

Where it is likely or even just possible that a correction is made by the original scribe (as with many of the underdottings and the re-ordering of words), we likewise use LauSC-c1. Where the intervention is incontrovertibly by a later hand or done at a later time, as many of the more savage erasures and overwritings are, as well as the addition of many of the marginal variants, then we use LauSC-c2. LauSC-c2 is a term which covers all serious interventions to the substance of the text: those which are attributable to the reviser, and even those marginal variants which are in Villani's own hand.

Where there is a clearly perceptible layering of interventions we use as necessary LauSC-c1, LauSC-c2, LauSC-c3, and even LauSC-c4, but these numbers are to be understood as referring to a sequence of interventions and readings rather than to different scribes and different times.

Purg. xxix 135 offers a good example of three clear layers of text.


The original reading is honestate et sodo (LauSC-orig); the first correcting hand cancels the -te of honestate and changes the $a$ to o, giving bonesto et sodo (LauSCc2); the second correcting hand puts a marker over bonesto and writes in the margin et con istato sodo (LauSC-c3).

Here is an example of the difficulty of sifting out the layers of correction.
Par. xxv 138

## 

The original reading (LauSC-orig) was per non poter uederla benche fossi; the second stage was: per non poter uedere ben che io fossi; the third stage: per non poter ueder ben ched io fossi.

At Burg. xx 141

##  come-pafion dacpzia uidizaned canto fin chaltiomax 1 et lye

we actually have four versions of the line:

LauSC-orig: fin che l tremar et lino compiesi

LauSC-c2: fin che $l$ tremar cess et el compiesi

LauSC-c3: fin che $l$ tremar cesso e $l$ dire compiesi
LauSC-c4: fin che $l$ tremar cess el dir compiesi

The second and third versions of the line are offered as alternatives since the marginal variant says either ... or: hel et el hel el dire. The underdotting of the final $e$ on dire gives the fourth version of the line.

We find the same offering of alternative readings at Burg. xxiv 4.


LauSC-orig: rimorte

LauSC-c2: smote

LauSC-c3: rimorte

LauSC-c4: mort
where one of the alternatives offered by the corrector is the original reading of the line before it was tinkered with.

Many of the judgments reflected in our labelling of the scribal hands in LauSC are not and cannot be definitive, but a practical decision had to be made if the
project was to go forward. We are well aware that other scholars might argue for the same hand where our labelling suggests a different one, and vice versa. What we offer in our labelling of the hands reflects our best attempt to produce a comprehensive and comprehensible display of the corrections on screen in the transcription, and to make the very complex material intelligible and manageable in the collation for the purposes of understanding textual variants and textual transmission.

The difficulty in identifying the correcting hands is less important than it might at first seem. What is of interest to the textual scholar is the original reading of LauSC rather than the amended one. The later corrections reflect a process of contamination with other witnesses which while undoubtedly interesting blurs the lines of transmission of the text. It is the original testimony of LauSC - the scriptio inferior - which establishes where the manuscript is to be placed in relation to other witnesses. Inevitably some parts of this testimony are not recoverable, where the original reading has been erased so thoroughly that it cannot be reconstructed. The textual material we present is as complete as we can make it in the circumstances. The unrecoverable readings of LauSC-orig appear in the transcription as [...], where the number of dots within the brackets indicates the number of letters which cannot be deciphered. But it is important to emphasise that it is the LauSC-orig file - the scriptio inferior - which has been used for creating the electronic stemma, in order to establish the affiliation of this manuscript with the other six witnesses in the Sanguineti genealogical tree. Where it is possible to make an educated guess at the original reading, this is suggested in a note, but is not included in the transcription itself.

One can access this original version of LauSC - Villani's copy before it was corrected - by clicking on the Literal button in the top right hand corner of the transcription page and choosing Original from the dropdown menu. Thus the heavily corrected page of which we saw the literal transcription on p. 245 appears like this:

GIa era in loco donde s udia il rinbonbo de $1 l$ acqua che cadea ne $l l$ altro giro simile a quel che 1 [.....] fanno ronbo
Quando tre ombre insieme si partiro correndo d una torma che passaua socto la pioggia de ll aspro martyro
Veni[...] uer noi e ciaschuna gridaua sostati tu ch a ll abito ne sembli esser alcun di nostra terra praua
Haime che piaghe uidi ne lor menbri ricenti et uecchie da le fiamme incese anchor men duol pur ch io me ne rimenbri
A lle lor grida il mio doctor li attese uolse il uiso uer me et disse aspecta ${ }^{1}$ [...................] esser cortese
Et se non fosse il foco che saecta la natura del loco io dicerei che meglio stesse ad te ch a llor la frecta
E incominciar come noi restammo [.]ey 1 antico uerso e[......] [...] fur giuncti [....] una rota di se tucti et trei
Qual soleano li campion far nudi et uncti aduisando lor presa et lor uantaggio prima che sien tra lor bactuti et puncti
$\mathrm{C}[. .$.$] rotando ciascuno il uisaggio$ drizzaua ad me si che tra loro il collo faceua ai pie continuo uiaggio
Et se miseria d esto loco sollo rende in dispregio noi et nostri preghi comincio 1 uno [........] aspecto et brollo
La fama nostra il tuo animo pieghi ad dirne chi tu se che i uiui piedi cosi securo per lo inferno freghi

We have not as a rule transcribed the occasional marginal notes and comments on the text, although attention is drawn to those of particular interest in the notes to the transcription at the foot of the page. Thus we draw attention to the two occasions on which a comment is made on Coluccio (Salutati)'s name for what appears to be an exclamation mark with two dots at an angle under it instead of one: Inf. i 82 (f. 2r):
'Ammiratiuo secondo messer Coluccio'

and Inf. xviii 85 (f. 36r):
‘secondo messer coluccio questo punto si chiama sespensiue ammiratiuo';

and to the several occasions on which interlinear notes redistribute between Dante and Virgil dialogue which modern editors attribute to one speaker alone (f. 7r: Inf. iv $34-36$; and f. 58 v : Inf. xxix 123). A full account of these notes and comments is given in Witness Description: LauSC. The longer descriptive rubrics, like the one to Inferno 12 which occupies half a page on f. 22v, have not been transcribed.

A small number of glosses has been transcribed, as at Inf. xiii 63 , where io ne perdei le uene e polsi is glossed idest io ne mori. These appear in green in the margin at the relevant point.

## tanta ch io ne perdei le uene repolsi ${ }^{\text {idest }}$ io ne mori

Where a correction is difficult to interpret, as at Purg. xxii 30, there is an editorial note which considers the possibilities at the foot of the page.

It is puzzling that some marginal variants have underdots: why was the variant not noted by simply omitting the cancelled letter? For example, at Purg. viii 76

we have a clear example of a retrievable erased reading, replaced partly on the line, partly in the margin, but then the puzzle of an underdot on this new reading. Compare also:

```
pozzra nel ten%plo liczipia-uclv. - portallọ neltempio
```

Purg. xx 93


Purg. xxi 20


Purg. xxvii 111.

As noted earlier, it is very difficult to be sure which hand does the underdots, or even whether several hands add them at different times. For reasons of simplicity and clarity we have attributed underdots almost always to LauSC-c1 except where, as in the cases just discussed, they are clearly a part of the added variant. But we urge the reader to consider Marchesini's beguiling view that all the underdots were added by the revising hand along with accents, punctuation and dots on the $i s$ in certain positions in a first thorough revision of the text before its textual substance was checked; a full account is given in Witness Descriptions: LauSC under Hands.

Here is a complete list of the cases of word re-ordering, which occurs far more frequently in Inferno than in Purgatorio, and less frequently still in Paradiso:

Inf. i 30; Inf. vi 91; Inf. viii 11; Inf. ix 33; Inf. x 21; Inf. xiii 22; Inf. xiii 76; Inf. xiv 27; Inf. xvi 109; Inf. xviii 115; Inf. xviii 129; Inf. xix 19; Inf. xix 25; Inf. xxii 68; Inf. xxii 105; Inf. xxiv 139; Inf. xxv 36; Inf. xxv 137; Inf. xxvi 113; Inf. xxvii 27; Inf. xxx 114 ; Inf. xxxii 49

Purg. i 30; Purg. ii 86; Purg. iv 114; Purg. v 52; Purg. xvi 78; Purg. xviii 16; Purg. xxi 26; Purg. xxxiii 110

Par. i 33; Par. i 35; Par. ii 126; Par. xv 3

## Transcription notes: Mart

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

The text of Mart consists of two clearly distinguished layers: the original Aldine printed text (identified in the collation as Mart-orig) and the variant readings whether incorporated into the line by adding or striking through letters in the printed text, or added as whole words or phrases in the surrounding margins which bear witness to the textual substance of the lost manuscript (these are identified in the collation as Mart-c2). Words added in the margins of the edition replace words underlined in the printed text; on just a few occasions the words in the printed text are underdotted rather than underlined. (There are two rather puzzling cases where the marginal variant or part of it is itself underdotted: these are transcribed exactly as they appear and are discussed in notes at the appropriate point in the transcription files.) Occasional underlinings and marginal notes by a much later hand are not included in the transcription.

The transcription of the first layer - the Aldine printed text - presents the textual substance of the edition stripped of all punctuation marks and accents. The punctuation was not recorded, both to maintain consistency with our practice in handling the manuscript witnesses, and to facilitate the handling of the transcription files alongside those manuscript files by the collation programme.

The punctuation marks and accents used in the Aldine text and not recorded in our transcription are: full stop, comma, colon, semi-colon, question mark, apostrophe, grave accent, and round brackets. (In contrast to modern practice, there is usually no space after a comma and a colon, but a small space both before and after a semi-colon.) The absence of punctuation in the transcription makes very little difference to the intelligibility of the text; in any case the punctuation
is instantly viewable by the curious reader, who merely needs to look at the display where original and transcription are presented side by side on the screen.

There are occasional marks or strokes in the printed text which have no textual substance but reflect the type-setting and printing process (eg. the solid straight bar between Ti and fia Ti|fia on p. 101v at Purg. viii 137 ): these are of no textual interest and are not recorded in the transcription.

The difference in colour between the dark ink of the edition and the pale brown ink of Martini's interventions means that normally the original reading of the printed text is fully decipherable even when it is overwritten or struck out. Very occasionally the original reading is difficult to ascertain with certainty because of Martini's vigorous crossings through, but the illegibility never involves more than a letter or two. In these cases I have consulted three other copies of the 1515 edition to confirm the underlying reading, two of them in the British Library [G10676, 679A19] and the third in the Cambridge University Library [Sel.6.7]. Not all copies of the same edition of an early printed book are necessarily identical: Renouard in his classic study of Aldine editions notes that a few insignificant changes have been introduced into this edition of the Commedia in the course of printing ('Il paroit qu'il se trouve quelque variation dans les exemplaires, denotant des corrections de peu d'importance, faites pendant le tirage.'). ${ }^{147}$ I am however confident that any such changes do not concern the very small number of readings at issue here - as noted, the difficulties concern just one or two letters in a word at most, and no more than ten letters in the whole text.

I have also consulted these British Library and Cambridge University Library copies of the 1515 edition when the ink of the printed text has not taken well on the paper, leaving a partially formed letter or a very faintly printed letter or on a few occasions no visible letter at all, and Martini completes or fills in the

[^82]imperfect or missing letters. A striking example of this occurs on p. 195r at Par. xiv 4-9 where six consecutive lines at the bottom of the page have letters filled in by the collator.

## N e la mia mente fe fubito arfo <br> Quefor, ch'i dico ift ome fi treque <br> La gloriofa vite di Thommafo; <br> P er la fimilitudine, che narque <br> Del fu parlar é di quel de Beatrice; <br> A xi fi cominaar doppo lui piacque.

(Interestingly, the British Library and Cambridge University Library copies present the text in perfectly legible form at this point: presumably the typesetting was adjusted in the course of printing, just as one of the misnumbered pages in Mart is correctly numbered in these three - clearly later - copies.) More commonly it is a question of a letter or two, as can be seen already in the bottom line on p. 2v (Inf. i 60) where Martini overwrites the imperfectly printed $n$ of ripingeua and o of doue:

## Mi ripingena la,dawe'l fot tace.

Such overwritings are not recorded in the transcription as they are not corrections and are of no textual interest. (A full list is appended to this account.) In the other three copies examined the ink is equally faint or invisible at these points, occasionally because of damaged type but more usually because of an irregularity in the type-setting.

There is a small number of misprints in the Aldine text, which are transcribed as they stand. Some of them are corrected by Martini and some are not. At the
point in the text where they occur, a note draws attention to the misprint and to Martinis intervention or failure to intervene. These notes form part of the transcription display files and appear at the foot of the page. For ease of reference, a complete list of misprints is given here:

Inf. xxi 89 qua for quatto [p. 49r]
Inf. xxix 80 suora for soura [p. 68r]
Purg. vi 16 preuaga for pregaua [ p. 94v]
Purg. xxii 14 nfirno for nferno [p. 133v]
Par. xi 30 fond for fondo [p. 188v]
Par. xxix 60 gliabauea for gli bauea [p. 233r]
At Inf. vi 73 [p. 37r] è subiti guadagni the accent on the $e$ may be a misprint for an apostrophe.

All these misprints are also present in the British Library and Cambridge University Library copies of the 1515 edition.

The transcription has followed the word separation of the printed text scrupulously with just one exception. The Aldine text regularly prints compounds with gli and ogni as a single word (thus gliocchi, gliusci, glieterni, gliardor, glialtri, gliodori; ognibora, ognialtro); senon and comequando and a few other similar phrases are also treated as a single unit. We have split these compounds in accordance with modern usage as the space or lack of it has no textual significance and is a distracting irrelevance to today's reader.

The transcription of the second layer - Martini's amended version of the printed text, including his on-the-line changes and the marginal variants - is necessarily a hybrid: where Martini changes nothing, the printed text is recorded, on the
assumption that Martini changed nothing because the manuscript he was collating was identical to the printed text. Again the words of Giorgio Petrocchi are pertinent: 'il suo scopo di tramandarci l'intera veste di un così venerando documento codicografico si deduce chiaramente dalla regolarità del lavoro e dalla precisione degli interventi correttorî. ${ }^{148}$ The minute particularity of his collation guarantees the authenticity of the parts of the printed text which remain intact, and hence of the whole witness. (Thus quite logically Petrocchi occasionally lists as readings of Mart words which are in the printed text and not in Martini's hand, as at Inf. ii 24: sciede.) Our transcription creates a unity, a single entity, from the printed and hand-written material: in effect it recreates in virtual form the lost codex from which Martini copied. The possibility of accessing that codex as a coherent textual unit, by going to the transcription and clicking on Martini's Collation in the pull-down menu under Literal in the top right hand corner of the transcription page, is one of the most exciting opportunities this electronic edition of the Commedia offers to students of the poem.

There are some things in Martini's collation which we do not record, namely accents, apostrophes and punctuation.

Martini occasionally adds an accent to the printed text: to the noun uiltà, to the preposition $\grave{a}$, to the past tense of verbs (gridò, segnò, furò, scalzò, squarciò, innouò), to the verb form uedestù: the addition of the accents in these cases does not affect meaning, and we do not record them. He twice adds an accent to signify the verb $\grave{e}$ where in the printed text there is simply $e$. As the addition of an accent here signals a change in meaning from conjunction to verb, in these cases there is a note at the appropriate point in the transcription file drawing attention to the collator's intervention and the change in sense. Conversely, he once cancels an accent on $\grave{e}$ (p. 39v Inf. xxvii 85).

[^83]Martini sometimes adds or cancels an apostrophe in the printed text, and again we do not record these in the transcription, although the presence or absence of an apostrophe is implied in the transcription by the space or lack of space between elements. When the addition or elimination of an apostrophe affects the sense, as it may do, there is a note in the transcription display at the appropriate point to draw attention to the change in meaning. Cancellation of an apostrophe in the printed text will alter word division, as in this odd example at Inf. vi 14 Fityat, where the transcription is: [1 atra]latra.

To summarise, most of the additions and deletions of accents and apostrophes do not affect sense: where they do, there is an editorial note. In the case of apostrophes, the spacing in the transcription in any case implies the change in meaning. Thus when printed che is amended by Martini with an accent and an apostrophe to become cb' $\dot{e}$ - as at Inf. vi 15 chè, and elsewhere - the transcription will have a space between $c b$ and $e(c b e)$, just as it would in our transcription of an original cb' $̀$ in the printed text: the transcription for the emendation will be $[$ che]ch e

All this may sound complicated, but when the transcription is viewed alongside the image the logic and intelligibility of the procedure is immediately apparent. In any case the number of cases where this happens is, as noted, extremely small.

Likewise we do not transcribe the rare accents, apostrophes, or other forms of punctuation in the marginal variants. We treat the textual substance of Martini's additions exactly as we treat the manuscript witnesses, which do not have accents and apostrophes but do sometimes have a rudimentary form of punctuation which is not transcribed. (On the one occasion where Martini's reading has an inappropriate accent - at Par. x 111 - attention is drawn to the oversight in a note.) The same is true for spacing: whereas the spacing of the printed text is exactly replicated (with the exceptions noted above), the spacing in the manuscript variants is treated in accordance with the guidelines followed
in the transcription of the manuscripts. Thus della in the printed text is transcribed della, whereas della in Martini's hand is transcribed de lla (for an account of our treatment of word spacing in the manuscripts see the general account of our transcription practice given in an earlier section of this introduction.)

Anything Martini adds or changes which has textual significance is recorded. Some of these interventions are minuscule, as when he adds a tiny cross-stroke to a long $s$ to change it into an $f$ (so sia becomes fia, and insino becomes infino). The display here will be $[\mathrm{s}] \mathrm{f}$.

## mfin in[s]fin <br> Purg. xxxii 156

Where Martini adds a macron to signify an abbreviation, as he frequently does, these are included in the transcription. There is some variation in the shape of the macrons he uses: some are flat, others flat with an upcurved end, others so inclined as to be almost vertical. (Note that the printed text itself uses macrons twice, on p. 200v at Par. xvi 23 on anni and at p. 204v Par. xvii 108 on s'abbandona: on both occasions the macron is used to save space because the line is very long).

Martini occasionally uses conventional (ie. non-numeric and non-alphabetical) signs or markers to indicate that the order of words or phrases on the line should be inverted, as at Purg. xxiv 101 [p. 140r] where the words si fer a lui are to become a lui si fer, and at Purg. xxxi 91 [p. 157r] where the words di fuor uirtu are to become uirtu di fuor. We have used Roman numerals $i$ and $i i$ to represent these markers.

## di fior hirtu di fuor ${ }^{\text {ii }}$ uirtu $^{i}$

Occasionally Martini clarifies in the margin a word he has first tried to amend in the text, but with results he evidently thinks are not clear.

At Inf. xxvii 4 dietry lejuenify dieho dietr' $a$ is amended to dietro. Both the correction on the line and the marginal addition appear in the transcription.

Occasionally he makes a correction twice: he makes a change on the line, then underlines it and replicates it in the margin for clarity (p. 98r: Purg. vii 70 sghembo, and p. 54r: Inf. xxiii 100 lun ). Once he makes a correction, realises he has made a mistake, and restores the original reading (p. 191r Par. xii 34: dou e); once the marginal correction is identical to the original cancelled reading (p. 68r Inf. xxix 55: la ministra); once he corrects on the line $l i$ then corrects again in the margin $g l i$ ( p .71 rInf . xxx 94). And there are occasional oversights: once he fails to underline the word $l a$ in the text even though he adds it in the margin, so in effect it appears twice in the corrected version (p. 13r Inf. v 92); at Purg. i 17 the word fuor is inadvertently duplicated, appearing in both margin and text; he fails to correct $L a$ to $L o$ as required when changing $L a$ prima volta to $L o$ primo giorno (p. 202v Par. xvi 144). All this detail is recorded in the transcription. But it seems only fair to say that in a text of 14,223 lines, this is a very small number of tiny inconsistencies: as a whole Martini's transcription is remarkable for its care, thoroughness, consistency and completeness.

There are three cases of a whole line cancelled then added at the bottom of the page: at Purg. xix 34; Par. xxix 42 and Par. xxx 125. Here the transcription reflects the placing of the correction in the bottom margin with arrows against individual words and phrases on the line.

Just occasionally a correction is puzzling and it is difficult to understand quite what is going on, as at Purg. xxviii 141
 Here the
corrected text and the marginal variant have both been underdotted, i.e. cancelled. The transcription simply shows the textual situation as it is.

Occasional marginal variants in a later hand, clearly distinguishable from that of Martini, are not included in the transcription. Thus for example the note added in the lower margin at Inf. xii 12
 is not transcribed.

The physical state of the text is good: there are occasional stains on the paper, some isolated smudging of the type, and ink occasionally shows through from the verso or the recto where the page has been damp, but these present no real problems in deciphering the text. Martini's hand, though minute, is very legible and presents no difficulties of interpretation.

The challenge presented by this witness was of a different kind: to find a system of encoding the alterations and additions to the printed text which on the one hand would enable us to create a display for the transcription which was both attractive and instantly intelligible, and on the other hand would enable scholars to interrogate the originally hybrid text of Mart-c2 as easily and unproblematically as any other witness. Mart more than any other witness was a test of our resourcefulness and ingenuity in devising a method of representing the state of the text as precisely as possible, and it was in tackling the problems it presents that some of the most original and innovative features of our transcription system were devised.

To illustrate our procedures, we can look first at a line of text and then at a whole page.
p. 56v Inf. xxiv 119

## forman 0 grugfitia di Dio quanto fewera; so néza

potenza

$$
\mathrm{O}{ }^{\leftarrow} \text { giustitia di Dio quantlo/ e seuera } \rightarrow \quad \text { se uera }
$$

This line is a good example of the self-explanatory character of our system of transcription and display. It also illustrates the importance of spacing, as Martini's right margin variant changes seuera to se uera.

The page reproduced below (p. 139r Purg. xxiv 40-69) offers a more extensive example of our system and is a good place for a reader new to that system to start. First, lines 40 to 54 of this page:

## PVRG. 24

O anima, diss' io; che par fi hagg
139
Di parlar meco; fa fu, ch'i t'intendd;
Et te $\mathcal{G}$ me ool tu parlare appagr.
F emina e' vatr, eJ non port' anchor benda,
Cominao of che tif fira piacere
La mia attr, come čhoom la riprenda. chor
T $u$ te $n$ andrai an quefto antivedere:
Se nel mio mormorar prendeft errores
Dichiarerantiti anchor le ofe ucre.
M a di, si we ggo qui colut, che fore
Traffe le nouc rime comincaando
Donne, c'haucte intelletto d'amore.
$\mathbf{E} t$ io a lui; $i m$ fon un ; che quando
mi Amorg,pira, noto; es a quel modo, che detta dentro, wo II guifiando. dento hai

|  |  | O anima diss io che par si uaga |  |
| :---: | :---: | :---: | :---: |
|  |  | Di parlar meco fa si ch it intenda |  |
|  | 42 | Et te et me col tu ${ }^{\text {lo/ }}$ parlare appaga |  |
|  |  | Femina e nata et non port anchor benda |  |
|  |  | Comincio e[i]l che ti fara piacere |  |
|  | 45 | La mia citta come chuom $\rightarrow$ la riprenda | c hor |
|  |  | Tu te n andrai con questo antiuedere |  |
|  |  | Se nel mio mormorar prendesti errore |  |
|  | 48 | Dichiareranlti anchor le cose uere |  |
|  |  | Ma di s i ueggio qui colui che fore |  |
|  |  | Trasse le noue rime cominciando |  |
|  | 51 | Donne c hauete intelletto d amore |  |
|  |  | Et io a lui i mi son un che quando |  |
| mi |  | Amore ${ }^{\leftarrow}$ spira noto et a quel modo |  |
|  | 54 | Che detta $\rightarrow$ dentro uo significando | detto hai |

Looking at the transcription, the viewer will see that the unaltered Aldine text is in black; the Aldine text where Martini has intervened is in blue; anything he has added, whether on the line or in the margin, is in green. Thus at line 42 he adds an interlinear $o$ to $t u$ to form tuo; at line 45 he underlines printed $c$ buom which is to be replaced by the variant $c$ hor in the right margin; at line 48 he cancels the $l$ in Dicbiareranlti but adds nothing; at line 53 he deletes the $e$ of Amore and adds $m i$ in the left margin; at line 54 he underlines detta and adds the variant detto bai in the right margin.

And now lines 55 to 69 of the page:

```
- Frate ifa uegg'w, dissengiz, il nodo;
    Che'l Notato, er Guittone, er me ritenne hormere.
    Di quadal dole falo norno, cbi: odo.
I ueggo ben, come le uoftre penne
    Diretroal dittator fen hammo flrette;
    che delle noftre certo non auenne.
E \(t\) qual pin a gradire oltre fi mette; a vignmorfont
    Non ucde piu da l'uno a laltro falo:
    Et quafi contentato fi trette.
C ome gli augelljg che Hernan werfol Nilo, Inngo if
    Alana uolta di lor fanno fchiera; it anze
    Poi wolan piu in fretta, ef uanno in filo; à
C ofi tutta la gente, che li era,
    Volgendo'l wifo raffretto fri paffo
    Et per magrezz \(\mathcal{O}\) per moler leggierd.
```



At line 55 Martini strikes through egli and adds el on the line; at line 56 he underlines Notaio and adds the variant Notaro in the right margin; at line 57 he
overwrites the $e$ of stile to form an $o$ (stilo); at line 59 he squeezes in an $o$ onto the end of Diretr to form Diretro; at line 61 he underlines a gradire and adds the variant a riguardare in the right margin; in line 64 he changes printed augei to augelli on the line, by turning the original $i$ into an $l$ and squeezing in $l i$, and then he underlines uerso $l$ and adds the variant lungo il in the right margin; in line 65 he underlines di lor and adds the variant in aere in the right margin; in line 66 he underlines in and adds the variant $a$ in the right margin; in line 68 he adds an interlinear $o$ to $s u$ to form suo; and finally in the last line on the page he strikes through the $i$ of leggiera. Sixteen variants on a single page in a text that runs to nearly five hundred pages: eloquent testimony to the thoroughness of Martini's collation and the challenge it presents to the transcriber.

The notes which accompany the transcription display comment on any aspect of the original or the transcription which is of interest or might appear puzzling to the reader. We have tried to keep these notes to a minimum: mostly the images are immediately intelligible and the transcriptions self-explanatory. The notes also record, as explained above, the small number of misprints in the printed text and Martini's intervention (or failure to intervene) to correct them.

As noted above, where the ink of the printed text has not taken well on the paper the faint or missing letters have been overwritten by Martini for clarification. These retouchings of the printed text are not included in the transcription, and are listed below (the overwritten letters are in square brackets):
p. 2 v , line 60: doue [ o ], ripingeua [ n ]; p. 11 v , line 9: de [e]; p. 13v, line 120: dubbiosi [io]; p. 17v, line 120: occhio [c]; p. 26v, line 104: discente [i]; p. 59r, line 118: uela [u]; p. 65v, line 74: torni [to]; p. 78v, line 109: fredda [e]; p. 81r, line 100: ch [c]; p. 87v, line 8: conscientia [e]; p. 93v, line 73: io [i]; p. 129r, line 32: Nicolao [c]; p. 134r, line 32: in 1 [1]; p. 155r, line 118: piu [i]; p. 157v, lines 122, 127: fiera [ e ], dentro [ t ], Mentre [ t ]; p. 164v, lines 37, 50: diuerse [first e], risalire [first i]; p. 165r, line 88: fai [i]; p. 167v, line 71: quei [e]; p.

168v, line 128: del [e]; p. 172v, line 93: usciresti [e]; p. 173, line 135: altra [1]; p. 180v, line 145: puoi [u]; p. 192r, line 91: tre [t] ; p. 194r, line 67: duce [d]; p. 195r, lines 4-9: mia [m], Questo [o], gloriosa [ri], similitudine [i], parlar [r], cominciar [m]; p. 211r, line 80: uertro [t]; p. 212v, line 5: Mi [i].

The rubrics at the beginning and end of each cantica were added by Martini and are transcribed in green, as are the canto numbers added to the running heads at the top of each page. The unexecuted capital letters for the first line of each cantica, where guide letters are printed alongside the space to guide the rubricator, are represented as lowercase letters.

Finally we can note that at p. 125r Purg. xviii 102 Petrocchi, in one of his very rare lapses, records the reading puose for Mart here against punse in the text; but in truth there is no sign of it.

It is worth emphasising that one of the remarkable achievements of the Commedia project transcription system is that it enables the reader to retrieve the original version of a text, before corrections have been executed, and a revised version where those corrections replace the original readings. This is particularly valuable in the case of Villani's heavily corrected LauSC, and of Martini's collation of the lost 1330-1331 manuscript (the oldest manuscript of which we have certain knowledge, even though it does not itself survive). The default version of every transcription shows the original with all scribal corrections made by the copyist. Where there are corrections, by clicking on the Literal button in the top right hand corner of the transcription page the dropdown menu offers a choice between Original and Correction first hand and, where appropriate, Correction second hand. In the case of Mart, the choice is between Aldine Original, which gives the printed text of the 1515 Aldine edition with no scribal interventions, and Martini's Collation, which substitutes the alternative readings copied from the lost manuscript from which Martini made his collation. We are in effect looking at a virtual recreation of that lost manuscript.

Here is the text of the lost manuscript at Purg. xxiv, 55-69 (Martini's Collation), which can usefully be compared with the Literal version shown on p. 264:

O Frate issa uegg io diss el il nodo Che 1 Notaro et Guittone et me ritenne
57 Di qua dal dolce stilo nouo ch i odo
I ueggio ben come le uostre penne
Diretro al dittator sen uanno strette
60 Che de lle nostre certo non auenne
Et qual piu a riguardare oltre si mette
Non uede piu da 1 uno a 1 altro stilo
63 Et quasi contentato si tacette
Come gli augelli che uernan lungo il Nilo
Alcuna uolta in aere fanno schiera
66 Poi uolan piu a fretta et uanno in filo
Cosi tutta la gente che li era
Volgendo 1 uiso raffretto suo passo
69 Et per magrezza et per uoler leggera

## Transcription notes: Rb

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

The text of the Commedia in ms. Rb is surrounded throughout by Jacopo della Lana's commentary, which occupies the margins and frames the text. The mise-en-page is typical of legal texts like the Decretum, which were usually accompanied by extensive marginal commentary, a page layout much used in Bologna where this manuscript was copied. As noted, Gabriella Pomaro offers an expert description of the manuscript and its creation, ${ }^{149}$ giving a fascinatingly detailed account of the way in which the codex was put together, with the commentary copied first and the poetic text later inserted into the lined space left at the centre of the page. The aesthetic dimension of the layout is striking, and, as we shall see in what follows, the process by which the codex was put together has some bearing on transcription issues.

There are interlinear commentary markers in the form of letters of the alphabet inserted above words in the text throughout: the same letter in the margin marks where the commentary relevant to that word or phrase begins.

[^84]
#  <br> Moun imménbar oiquctic pmole c on tequan litalictich patu 2 ene oifipfition clet act ro uole 17 conanicer malutiac la mattor 23 eflalitate chome mitentercea osen dio of tate emen buafmo acturth <br> (1be tunguizol ten quefta fenter E redur ala mane cbs fon qucilt c be findifios foftegnon pentrenci © $\mathfrak{n}$ ucoail ten $p$ che anqueft felli fian oipmaticp chemen drosucter 2 a อuท ina uchocta ti maztell 

Inf. xi 79-90 (f. 30r)

Here the letters $n, o, p$ and $q$ are clearly visible over the words rimenbra, quelle, riguardi and uedrai.

Here is a page with a particularly rich crop of commentary notes:

2an atum coirlinoancos pging If cato chx mo ota afia menclato E Coltre promelion techofifpicha
Quclt elx Antinchamete petero
2 cmax lozo C fioftato fulice
f ozic impanafo efto luclo fognato
Quf furmacte Lumana morec

If ctht e gucho picle aififunvice
(10) mintolí Dictio aloten utto

AI ma porata cumo clx commío
Votosucmolultuno conftutto
Porala tetla mona tornat utufo
Purg. xxviii 136-148 (f. 174r)

On the opening page these interlinear references to the commentary are duplicated, i.e. there are two for each note, at the beginning and the end of the word or phrase in question, as here:

ए Anct amian dre polas ctran mo2x $021 \overline{\mathrm{p}}$ thent
Inf. i 7-8 (f. 1r)
where the letter $d$ appears twice over trattar. From f. 1v on there is only one letter per word. Normally these letters are quite clear and there is no problem distinguishing them from interlinear corrections and additions to the text, such as:
S cco $\rightarrow$ Seco ${ }^{\backslash \mathrm{lo} /}$ Inf. ii 15; tilto $\mathrm{tu}^{\backslash \mathrm{tt} / \text { to } \text { Inf. ii } 39}$

Corrections made by the scribe to the text are very unobtrusive. To indicate cancellation he uses underdots, as here: $\mathbf{W T H 1}$ Purg. xxviii 146 (f. 174r) where an original potenti has been corrected poeti by the use of underdots under $t$ and $n$. The scribe also uses dots inside letters and through the middle of words, as in these examples: ${ }^{111 \text { to2110 }}$ Inf. xxii 75 (f. 66v); E月1to Inf. xxiv 137 (f. 74v); and sometimes both at once, as in these cases: भुलटि. Inf. xi 78; çove Inf. xviii 98.

For clarity and simplicity of presentation we have transcribed these various uses of deletion dots as dots under the letter and they appear as underdots in the transcription display.

For larger cancellations, of a line or several lines of text, rather than striking through the words the scribe characteristically encloses the passage to be deleted within the tiny letters $v a \ldots c a t$, as in these examples:

## (h) viviquel baxto clx cacoo mzqumo <br> $Z$ uactas mia mazas e conmgga Folo im pirct trou hiflavino

Inf. iv $128 \mathrm{r}-129 \mathrm{r}$ (f. 10r)


Inf. xxvi 103r-4r (f. 80r)

We number the deleted duplicated lines in the transcription with the normal line number plus $r$ : so here 128r-129r; 103r-104r. Pomaro shows that these and other repeated then cancelled lines are in fact space-fillers used to fill blank space on the page when the number of lines required for the text had for whatever reason been miscalculated: an aesthetic imperative rather than a textual one is
operating here. A full list of these repeated then cancelled lines is appended below.

The most arresting case of deletion with $v a \ldots c a t$ (or $v a \ldots c a$ ) occurs at ff. $58 \mathrm{v}-$ 59 r , where the scribe has inserted a self-declared interpolated passage 22 lines long in Inferno xx at f .58 v - a caso unico among the manuscripts in the project - then subsequently cancelled the whole passage, that is to say a whole page of text:

```
~N (Ounucnowurel txibo maponLaumiertace
    1P grampiemov de fucc laumuse
```




```
    Il caltoftictsucaic ionack
    I verem Ofopwme3:xnf:02c
    |E\pi
```



```
    Z 0-1ncinzes wif amtico
```



```
    P compicz vozen gluthme fulco
```



```
        (% vidpicefv colloncllompunco
    Eifczictevact cnóa unole
    Potropo clequeitohnacmeo
```



```
    0s vinzaroo covo fig ontute cro teconto
    Quantoala unf:mmanö fofon fatum
```



```
    2% oncl fapes ancos men ma matum
    Io buom flutunte vaçol conofary
    C bilfe ondeluche cam lo pormuctum, or
```

As a consequence he must then also cancel the following page of genuine text which is now out of sequence: the whole of f .59 r is thus also enclosed within va. cat:


The text resumes at f . 59 v , which now follows directly from f . 58 r after two complete pages of deleted text. The 'clean' version of the duplicated material (Inferno $\mathrm{xx} 25-46$ ) is on f . 60r. There is a small number of insignificant variants in the two versions: we have used the text of the uncancelled version in the collation. The minor variants in the cancelled version can be viewed in the transcription and image for f. 59r, and are listed in Pomaro I copisti 518.

In this article Pomaro also gives a minutely detailed account of the process of correction of the codex: first the commentary was corrected, then the text; in the first instance the corrector made marginal notes and did not intervene directly in the textual substance, even for corrections of a single letter; when the correction had subsequently been incorporated into the text, the marginal annotation was erased. Pomaro concludes that it is not possible to know if the corrector and the copyist are the same person (p. 516) but that they may well be, a conclusion which our own experience of transcribing the text supports.

When the process of correction is complete for a gathering the scribe adds cor. (sometimes in a decorative shape) at the end of both text and commentary, as here:


Purg. ix 95 (f. 124v)

Our transcription is concerned only with the corrections made to the text of the Commedia. Many of these are executed in the manner described above. Where the evidence of intervention is clear we register these in the normal way, as here:


and here pqٌた 10 per qua[..]le io ${ }_{\text {Inf. ix }} 21$.

However not all of these microscopic corrections have been registered in the transcription, since the intervention is often so discreet as to be almost imperceptible (only the sign of erasure in the margin is indicative) and the significance in textual terms is minimal, since these appear to be slips of the pen which are being rectified rather than variants in any meaningful sense, as here with the letter $s$ in tinsemo at Inf. v $90 \mathbf{t 1 1 2} \mathbf{f m} 1$

Corrections by later hands, clearly distinguishable from the interventions of this first corrector, are always registered, for example:

## Pavole or coloze agention

## Parole di dolore agenti ${ }^{\text {\aliter acese/ }} \mathrm{d}$ ira

Inf. iii 26

## 

Sempre in quel aura sanza tempo
Inf. iii 29

The original and later correcting hand and the distinction between their method can be seen clearly here:

## Vedito fimmitia cle fe orito FThusa vala mfututel ucozan

## Vedi [..]lo farinata che s e dritto <br> centura $\quad 33 \quad \mathrm{Da}$ la ${ }^{\leftarrow}$ in su tuto 1 uedrai

Inf. x 32-33
where the original corrector alters to $l o$ - the marginal annotation is still visible to the far right of the text - but fails to spot the missing word cintola in the next line (centura is added by a later hand).

Pomaro lists both original corrections (pp. 519-20; p. 522; p. 524) and later interventions in the text (p. 520; p. 522) attributable to at least two different hands, and we refer readers to her article for a fuller account. In our transcription corrections by the presumed original hand are attributed to $\mathrm{Rb}-\mathrm{c} 1$ while those clearly added by later hands are labelled $\mathrm{Rb}-\mathrm{c} 2$. Pomaro makes the important point, again confirmed by our own experience in transcribing, that the original correcting phase appears to have been carried out without recourse to another manuscript. For the purposes of determining manuscript relationships the text as it appears after the intervention of the original correcting hand is the version of interest for stemmatic analysis.

Occasionally words have been overwritten in darker ink because they are very faint, as at Par. vi 133: Quatrlo/


These are not corrections and are not included in the transcription.

There are very deep corrugations in the parchment in the opening pages and some later pages, as here:


Purg. i 88f. (f. 107r)

This means that occasionally the naked eye can discern a reading more clearly than is possible on the digitised images, notwithstanding their superb quality.

There are also pages which are very rubbed and faint, as here:


Inf. xix, 81-92 (f. 57r)

Furthermore it is not always easy to distinguish on the images between erasure marks in the margin and slight stains or marks on the parchment (all show as small dark blotches), but on the original parchment the scraped away surface is clear.

The scribe uses an odd form of capital H with an extra vertical line at Inf. xxviii 1 (Chi) and Purg. xiii 53 (where it might easily be misread as lbuomo: 7b110110), and Purg. xiv 1 (Cbi).

Repeated lines, deleted with $v a \ldots$ cat, are to be found at the bottom of these pages: f. 10r Inf. iv 128r-129r; f. 70v Inf. xxiii 125r-126r; f. 75r Inf. xxv 43r-45r; f. 80r Inf. xxvi 103r-104r; f. 111r Purg. iii 118r; f. 182v Purg. xxxii 39r; f. 7v Par. ii 124 r; f. 48v Par. xv 36 (on this one occasion only, immediately following the last line of text on the page, the same line has been repeated, cancelled with $v a$ ... cat, then completely scraped away).

Repeated then cancelled lines are to be found at the top of these pages: f .46 r Inf. xvi 22r-23r; f. 74v Inf. xxiv 127r; f. 106r Purg. i 32r-33r; f. 154r Purg. xxi 72r; f. 182r Purg. xxxi 132r.

Occasionally the repetition and cancellation appears to be a genuine mistake, as in these cases:

```
    vengnoritmeivuciencammin
    c lx pumnoze at frix alcun figluolo
    zengno of tmenvucrencl minfla
```



```
    2 ong-1 La lastac cor fel bunclov mifm
    Pozcitat fitor cipelf fomiglamte
    OCquill citulat puto toppLi thf:
    71mm
```

Purg. i 32r-33r (f. 106r)
(the duplication and cancellation has confused the copyist, who from this point on has marked the last line of the tercet instead of the first for the rubricator to add the paraphs);


Par. xxxi 142 (f. 94 r)
(here the copyist fails to realise he has come to the end of the canto and carries on with the first line of the next canto: when he becomes aware of his mistake, he cancels the inappropriate text with va ... cat);

> Oif mofhat cooclan amem fi pore vo
> 71 oncaumintorncosa monte malo 7) Altofto tucelitero elx come innto et In clmontaz fin collifinn nel clatom

Par. xv 108r-111r (f. 50r)

These lines have been cancelled by the scribe with va ... cat, confusing the rubricator who stops adding the blue and red paraphs because he can't work out the sequence. The confusion is compounded by the fact that further down the page the copyist has conflated two lines to make one, thus:

A così riposato, a così bello
viver di cittadini, a così fida
cittadinanza, a così dolce ostello...
becomes:

Cossi riposato a cossi bello
Viver di citadini a cossi dolce ostello


This second line is a hybrid of lines 131 and 132. We have labelled it 131a for reference purposes.

Errors Corrected with an Insertion Marker

Several times a line or two was omitted and added above or below the text by the correcting hand with an insertion marker at the appropriate point:

## н H on figgorit che uncero la pruoua

f. 20r Inf. viii 122

Here the omitted line was added at the bottom of the page. The correction was made after the rubricator added the paraphs; consequently in the last two terzine the paraphs are against the second rather than the first line of the tercet. We have attempted to make the display in the transcription reflect the situation on the page, within the limits the technology allows.

The same thing happens at:

Inf. xiii, 35-37

and the rubricator's confusion is evident.

## in on almamete acbulle firefoffe

## a bantwant 1 ftol mgamimete

Q ulume fintatto alfitimo confiflozo
If ratic penfana fozic queita fict
pu qui pufo cfozfi alno tuccho
Difaghiv piporazme fulo i picce
7501 m piniclx poi wotion un podo
C entel come folgos difentenc
e mempint finfo mfinoal ficato

E fíloncnoro magunto clofic
c be comиenc clel fomisofiomporic
Purg. ix 34

This line was omitted then added above the main body of text: an insertion marker at the end of line 33 marks the point where the line is to be inserted. From this point on the paraphs are against the wrong line. The same thing happens again at Purg. xviii 12-13 and Purg. xviii 62. Pomaro I copisti 521 notes that the copyist is less meticulously careful in terms of page layout in the Purgatorio than in the Inferno, and mistakes are more frequent.

Occasionally our transcription diverges from the reading registered by Petrocchi in his apparatus, or from the transcription on the SDI website, as at Inf. xii 101, where the correction is from dolor (not bolor) to color $\boldsymbol{D}$ l02, and at Inf. xxx 123, where Petrocchi reads ti sasepa but the reading is clearly ti fa sepa "f.fqu.

We have looked with particular care at cases of disagreement of this kind. Occasionally we register corrections not noted by Petrocchi, as at Purg. xxii 56 Thfith where the change is from iustitia to tristitia. We have not usually drawn attention to these discrepancies, since our transcription, here as elsewhere, can always be checked against the images. Where it is difficult to be sure of the meaning of an abbreviation sign we have preserved the abbreviated
form in the transcription (often echoing Petrocchi's uncertainty). Where there is a superfluous abbreviation sign attention is drawn to this in a note, as at Par. viii 1 piclo.

## Transcription notes: Triv

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

Francesco di Ser Nardo's hand is extraordinarily even, regular, and clear and creates few problems for the transcriber. Here is a characteristic example of his hand with its distinctive and beautiful appearance:


Purg. xxvii 139-42

Note that in the space of three lines he has used three different forms of the letter $r$ in the words dir, libero and fora: $A_{1 y}$ libero foan in letter form - apparently for no other reason than that of variety and pleasing aesthetic effect - is one of the most distinctive features of his scribal practice, together with the generous spacing of letters and words and the use of embellishments (decorative trailing flourishes) added to certain letters.

Variant letter forms: I, g, r, v, s, p, f
I list and illustrate here some of the commonest variant forms of certain letters (the list is by no means exhaustive), where the examples show also the care with spacing and the marked decorative element in which the scribe clearly takes such pleasure.

There are four forms of the letter $l$, all used in the space of a few lines at Inf. i 68-72:


Thus li, lombardi, Iulio, nel, though strictly speaking the $l$ of nel is the same as the $l$ of Iulio with the addition of a decorative embellishment. Here we also see the characteristic double $l$ in delli $X_{c} \overrightarrow{l i}_{i}$ but there are other forms also of quellombia
double $l$, as at Inf. ii 44 quellombra mr $r$, Inf. ii 53 bella rbe lla. At Inf. iii 18 we see two kinds of double $l$ in a single word: dellintellecto Qdilintellecto.

The first form of $l$ (as seen in $l i$ above) can sometimes be so large as to look like a capital $l$, as at Inf. iii 30 come la rena

or Inf. iii 75 per lo fioco lume

(where both $P_{\text {s }}$ look surprisingly large in context)


It is as though Francesco di ser Nardo is improvising freely within a rather extensive character set containing many more elements than just the basic letters of the alphabet in order to give the most harmonious and visually pleasing presentation of the text. He is a little hesitant at first, as at Inf. i 9 del laltre de- Caltre, but seems to work with increasing confidence and fluency as he progresses. Compare Inf. ii 67 la tua parola ornata

## Tatua parola exnata

with trails on the $l_{s}$ in different directions to create a striking visual symmetry in the line. The skill and improvisational brilliance he shows when he is in his stride is thrown into relief when, as occasionally happens, he fails to vary his letter forms, as at Par. xii 119 illolglio RELGLo
, with its four $l$ s bunched close together. Endless examples could be provided of what seems to be obvious pleasure taken in the act of creating a text (or making an artefact) as visually pleasing as possible on the page. The reader is urged to take these notes as a starting-point and to browse freely to appreciate this aspect of his scribal practice.

Here are some forms of $g$ and double $g$ :

Inf. iii 92 piaggia
 b)


Rhyme words seem sometimes to be deliberately varied, as at:

Inf. vi 67 and 69 caggia ... piaggia
 and Inf. xiv 19


But note also Inf. xi 49 suggella

Purg. xix 130 caggion

5 raggiando
for the pleasure of varying.

We have already noticed three forms of the letter $r$; here they are again in the space of half a line:

Inf. ii 84 tornar tu ardi

## tonnav ta aith or indeed a single word:

Inf. xxxi 39 errore evioze.

As here, double consonants often present two different forms of the letter side by side, though in no particular order (cf. soccorri at Inf. ii 104

The letter $v$ appears in various forms, as in the words vole, veggi and verita at Par. xxix 72-74 vole. vegg neryta.

There are three forms of the letter $s$ : two of them can be seen here at Inf. iii 95
 Inf. iv 65 selva बิva. This becomes the distinctive final $s$ on many (though not all) Latin words, as in these examples:


Purg. xxx 17 senis $\begin{array}{r}\text { entes }\end{array}$

Purg. xxx 19 benedictus qui venis


Purg. xxxiii 10 videbitis (but cf. videbitis nidebitr) at line 12);


Par. vii 3 felices but ignes


The letters $p$ and $f$ also have forms with a single stem or a double or split stem, as here: Inf. xi 69 el popol che possiede
 and filfite
compare falsita at Inf. xi 59
with fede spetial at Inf. xi 63


The pleasure in variation is particularly apparent where the same word is repeated in close proximity but with different letter forms, as at Purg. xxx 5657, where pianger appears twice with a different $p$ and $r$ the second time pianger pianger ; and at Purg. xxxii 135, where we find vago vago vago vago.
with two $v$ 's and two $g$ 's:

The choice of which letter form is used at any given point seems to be governed only by aesthetic criteria of variety and spacing: there is no clear pattern of distribution allowing one to identify other possible factors determining the choice.

Upper-case letter forms
There are different forms of capital letters as well as lower-case ones; compare

Figlio and Fiorença at Par. xv 94 and 97


Orazio and Ovidio at Inf. iv 89 and 90

## (1) Cutuo Cusio; and

Aldobrandesco and Asdente at Purg. xi 59 and Inf. xx 118 respectively:
NebGrandefo
Sfoente

What are normally capital letter forms are occasionally used not just at the beginning of a word or sentence but in the middle of a word or phrase where they seem rather to function as an alternative lower-case form. Thus we find:

## QGIETIOn <br> Purg. vi 128

## Copaono

Inf. xxii 137


Purg. iv 103


Purg. xx 83

## Che

Par. xv 30.

These have been treated simply as variant letter forms and transcribed as lowercase (so digression, compagno, persone, sangue, bis). Whereas in modern printed
text upper-case is distinguished from lower-case by both size and letter-shape, and the two things go in tandem, in this manuscript these variables operate separately. We transcribe as lower-case, even at the beginning of words, when the size suggests that the scribe was not attributing a special emphasis to them. Capital forms used regularly as lower-case are $g$ and $s$ (as described above),


Inevitably there is a middle range of sizes where it is impossible to say with confidence that upper-case or lower-case is intended. We normally transcribe these smaller, less emphatic upper-case forms as lower-case letters, and do so even when they occur at the beginning of the second and third lines in the tercet, as normal practice in this manuscript is not to use a capital letter in this position; by extension, we do the same thing when they occur midline. Inevitably the decision to transcribe as upper-case or lower-case in these intermediate sizes is a matter of editorial judgment. We have tried to be as consistent as possible, given the variables being assessed, but absolute consistency in this matter is an unattainable goal. The general difficulty about size and shape is well illustrated if we compare the $l$ of le at Purg. xxxiii 13

with the $L$ of Lorenzo at Par. iv 83

Tenne sufficient indicator of whether it is appropriate to transcribe as capital or lowercase.

## Word spacing

There are sometimes surprisingly large spaces between words, but these have no textual significance; they seem often to be dictated by aesthetic considerations of spacing and balance. These spaces are not represented in the transcription, even when they seem exaggerated, as at: Par. viii 130


Normal spacing is in any case quite generous compared with other mss:


Par. ix 62
and can even on occasion seem to be governed by a rudimentary attempt at line justification:


Par. x 76-78

Sometimes a small space is left in the line because of an irregularity in the parchment surface which the scribe avoids writing on: these are not registered in the transcription because they are not meaningful. We have not added editorial notes on most of these cases since the situation is self-evident when
one examines the image. Often an unusually large space is caused just by the desire not to overwrite the tail of a letter from the line above, as here:

(Purg. viii 92) la basse
or here:

(where the exaggerated space between the words Lascio and lo fele is clearly caused by the desire to avoid overwriting the tails of the $f$ s from the preceding line);
or here:

where the same is clearly true.

Unusual spacing is retained in the transcription when it is so idiosyncratic that the sense risks being lost, as here:

Purg. iii 49 Tra le ricce dorbia
(Petrocchi: Tra Lerice e Turbía)

## Underdots

Cancellation of words and letters to be deleted is normally by discreet underdotting. Occasionally there are spots on the page which look like underdots but which we must assume are random spots, as for example on f .1 r , Inf. i 51-52, where the dots under molta, uiuer and Questa cannot be intentional:


Folio 1 r is a particularly 'spotty' page, but there are cases of this random spotting throughout.

Whether an isolated dot is intentional or not will sometimes be a question of editorial judgment. Where it is impossible to imagine that the dot can be intended, since it produces a nonsensical or problematic reading (eg. Inf. vii 1 alepe alcpe; Inf. xvii 46 fora $\left\{\begin{array}{l}\text { - ; ; Par. iv } 111 \text { cadere } \\ \text { cridere), it is not }\end{array}\right.$ included in the transcription. Again, in order not to overload the pages with editorial notes, we have for the most part not commented on these cases: the reader will have to take it on trust that we have given all cases of possible underdotting our full scrutiny and that the failure to comment is not an oversight.

Very occasionally an underdot will alter the meaning of a word or phrase, as here:


Inf. xii 112 suọ, where suo (figliastro suo) becomes su (su nel mondo).

Sometimes it will correct a metrical error by removing a supernumerary syllable, as in these cases:

Inf. xiv 44 domoni

## thete lecore fuor de iomom? Pury

Inf. xvi 9 alcuno

## 

Inf. xviii 28 Romani


Inf. xviii 114 humani


Inf. xxiv 128 domandalo

(There are many other similar cases, as many as one or two per canto.) But more frequently the underdot indicates an elision rather than the elimination of an outright error, as here:

## cboodmandaua 2 Rmiọ' Suca orluı

(Inf. xiv 50)

## rif pitofig Fix val 110farefte ancova

(Inf. xv 80)

Thus there is often an underdot on the $o$ of $i o$, though the word is normally written in full. Interestingly, on two occasions there is an underdot on the catchword which is also there in the text which follows, as here:
f. 40 v catchword

and f. 40 (bis)r


## Corrections

There are some small corrections to the text in a hand which is not that of the original copyist. These appear in Word Collation as Triv-c2. At Inf. xxxii 76
the final $a$ is written in interlineo to avoid overwriting the tail of the ç from the line above. This is not a correction and is not registered in the transcription.

## Abbreviations

Francesco di ser Nardo is extraordinarily accurate (and rather sparing) in his use of abbreviations. There are very few superfluous or misplaced abbreviation signs. He uses the titulus and the tail on the letter $p$ often, and with a stylish flourish,
 (Purg. ix 62). Other abbreviations are used much less frequently, for example Dau®am?
(Purg. ix 140). One error in Triv is clearly based on a misplaced or misunderstood abbreviation sign in the antigrafo:

## Tifprofie lit manon amos Srfooluoto

(Purg. xviii 41)
where the misreading (manon for m'anno) creates a twelve syllable line. This kind of mistake is extremely unusual in Triv; it is equally unusual to find banal transcription errors, as at Inf. xxv 9 ciollo for crollo ctollo. and at Purg. xxix 147 biolo for brolo to where an $r$ in the exemplar has been misread as $i$. On the very few occasions where an abbreviation is puzzling, we record it in the transcription as it is, as at Purg. xxx 21:

## mame fig eofte hilia plemig.

## manibus editē lilia plenis

## shpharo <br> At Par. xxvi 17 <br> we transcribe $O$ and not $O($ mega $)$, unlike

 Natale Divina Commedia ad loc.
## Extra-textual features

The figures in the margin at the end of each canto which register the number of rhyme-sounds in the canto (or the number of metrical units if the final line is counted as a unit which brings closure to the sequence: see Triv Manuscript Description) are not included in the transcription; nor are the punti which regularly mark the end of a tercet. As noted, Natale Divina Commedia xxxvi believes these punti served to count tercets in order to calculate the scribe's fee. The opening lines of Paradiso v are a good example of the relationship of these punti to the text: they are slightly darker and it seems likely that they were added later.


There are occasional crosses in the margin indicating scribal perplexity, eg. at Par. viii 1 and 3

where the scribe has noticed that pericolo does not rhyme with epiciclo. Not all of these crosses are against obviously problematic readings; they have not been registered in the transcription, since any interested reader will find them without difficulty.

## Transcription notes: Urb

These notes should be read in conjunction with the account of our transcription practice given in the General Transcription Note.

As we noted in the first edition of the digital Commedia, the basic transcription for Urb was checked against the original in the Vatican Library in 2003, but since the library was unable for contractual reasons to supply digitised images, and then in 2008 shut without warning (and remained shut for some years), it was not possible to check some aspects of the description and transcription of the codex as thoroughly as we would have wished. In particular, cantos xxviii and xxix of Purgatorio have a rich series of tiny interlinear glosses which we were not able to include in the transcription, since on a microfilm they were mostly illegible and there was no opportunity to examine them directly in the library or on high-quality images.

Happily in this second edition we are able both to supply superb digitised images of ms. Urb in its entirety, and to include a transcription of these glosses, which appear in the transcription in the normal way. A small number of these glosses are almost illegible. I am grateful to Adam Beresford, Gabriele Rota and Alessandro Zammataro for their suggestions about how these problematic cases are to be deciphered.

A small number of alternative readings to the final cantos of Purgatorio and to Paradiso are transcribed and attributed to a later hand (Urb-c2) in the collation.

An abbreviated form of the word Nota in red appears frequently (some eightyfive times) in the margin drawing attention to readings of particular sententious interest, accompanied by a pointing hand in an elegant buttoned sleeve:


A cruder version of the manicola, without the word nota, and without the shirt sleeve, also occurs frequently (more than thirty times), often at points of particular interest in the narrative. These interventions are extremely discreet and do not detract from or clutter the elegant mise en page of the text. There is an occasional minuscule $n$ for nota in the margin. These marginal annotations have not been transcribed.

Word separation is usually matched to the Petrocchi edition in accordance with our normal practice, but where this might create confusion by suggesting a different interpretation, or the word division is so idiosyncratic as to suggest the scribe did not understand the meaning, the original spacing has been retained, as at: Purg. v 18 perche la foga 1 un de 1 altro insolla [f. 68r], where the ms. spacing is per chel a foga, as Petrocchi registers in his apparatus but Sanguineti does not:

## per-dyal afign lun oc latuo in iolla.

and at Purg. xx 119 secondo 1 affection ch ad ir ci sprona [f. 96v], where the reading suggested by the spacing is ch'a dir rather than ch'ad ir:

## Reconto laffection drion or fproina

Petrocchi registers cha dir in his apparatus; again Sanguineti is silent. Here we transcribe exactly as in the manuscript (cha dir), since to match the Petrocchi text and put ad ir gives a different reading.

Very discreet headings in the margins in Purgatorio and Paradiso registering the subdivisions of the two kingdoms have been transcribed and are listed here for completeness:
f. 81 r Inuidia [right margin in pale brown ink at line 92]
f. 86r Ira [right margin at line 35]
f. 90 r Accidia [right margin at line 48]
f. 100v Gula [top margin]
f. 106r Luxuria [top right margin at line 109]
f. 124r luna [top right margin]
f. 130v Mercurius [top margin]
f. 135r Venus [top margin]
f. 139r Sol [top right margin]
f. 147r Mars [top margin]
f. 154v Jupiter [top right margin]
f. 159v Saturnus [top right margin]
f. 162v stelle fixe [top margin]
f. 171v primi mobilis [top margin]
f. 176v Empireum [top margin]

## V. The Collation

## Introduction

The collation is the electronic equivalent of a traditional critical apparatus. It is accessed by clicking on the Collation button in the top left hand corner of the screen. It presents all the significant variant readings in the seven manuscripts, whether they are plausible alternative readings or clearly (or even arguably) errors. It allows the reader to go to any line in the text and see at a glance what these variants are, and what their distribution is in the manuscripts (both the original readings and corrected readings where these exist). It also includes the Petrocchi and Sanguineti texts, which display alongside the manuscripts. The methodology employed in the creation of the collation, in particular the criteria used for deciding whether closely similar readings were to be considered genuine variants or not, is described in the paragraphs which follow.

## Base text Petrocchi

The base text against which the variants display can be chosen by the reader from the dropdown menu listing manuscripts and editions. If a manuscript is chosen as base text, the manuscript image will appear in the left hand window alongside the collation. For those using the site for the first time, we recommend using Petrocchi (PET) as the base text, and in the screenshots which illustrate this section of the introduction the base text is always Petrocchi. Thus in the screenshot below it is the text of the poem as it appears in the Petrocchi edition, stripped of punctuation and accents but untouched in its textual substance, which displays down the left hand side of the page and against which all witnesses are compared. The first line of the text displays like this:

1 Nel mezzo del cammin di nostra vita
Original Spelling
Nel Ash Ham LauSC Mart Rb Triv Urb FS PET
mezzo Ash Ham LauSC Mart Rb Triv Urb FS PET
del Ash Ham LauSC Mart Rb Triv Urb FS PET
cammin Ash Ham LauSC Mart Rb Triv Urb FS PET
di Ash Ham LauSC Mart Rb Triv Urb FS PET
nostra Ash Ham LauSC Mart Rb Triv Urb FS PET
vita Ash Ham LauSC Mart Rb Triv Urb FS PET

There are no significant variants on any word in the first line.

## Spelling and formal variants

There are, however, spelling and formal variants on this line, and these can be accessed by clicking on the Original Spelling button at the top of the page. The word mezzo, for example, appears in different forms in many manuscripts:

| 1 Nel mezzo del cammin di nostra vita $\quad$ Regularized Spelling |  |
| :--- | :--- |
| Nel | Ash Ham Rb Urb (NEl), LauSC Triv (NEL), Mart (nEl), FS PET (Nel) |
| mezzo | Ash (meço), Ham (meço), LauSC (MEZZO), Mart PET (mezzo), Rb (meço), Triv |
|  | (MEÇ\|ÇO), Urb (meggio), FS (mezzo) |
| del | Ash Ham LauSC Mart Rb Urb FS PET (del), Triv (DEL\|) |
| cammin | Ash (chamin), Ham Mart Rb Urb FS (camin), LauSC (camin\|), Triv (CAMMI|N), |
|  | PET (cammin) |
| di | Ash Ham LauSC Mart FS PET (di), Rb (de), Triv (DI), Urb (di\|) |
| nostra | Ash Ham LauSC Mart Rb Urb FS PET (nostra), Triv (NO\|SRA) |
| vita | Ash Ham LauSC Mart Rb Urb (uita), Triv (VI\|TA), FS PET (vita) |

Thus $m(e)_{\xi} o$ in ms . Rb and $m e s ̧ o$ in ms . Ash are spelling variants (they display separately because Rb has $e$ in italic representing an expanded abbreviation, whereas Ash does not), while meggio in ms. Urb is a formal variant (a form of the word characteristically found in manuscripts copied in northern Italy). The Original Spelling display shows the form in which every word appears in every manuscript (with all expanded abbreviations in italic), each reading registered alongside the manuscript sigil. By clicking on the manuscript sigil, one is taken to the manuscript folio itself, so that checking curious or puzzling readings can
be carried out instantly. Thus clicking on the sigil LauSC will take one to the opening lines of the poem in that manuscript:


Inf. i 1

Clicking on the Collation button in the top left hand margin takes one back to the collation.

## Regularisation

Spelling variants are 'regularised' or 'normalised' because they have no bearing on textual substance. Formal variants are 'regularised' because they might suggest manuscript affiliations which are dependent on regional linguistic features rather than on descent: thus meggio (or megio) for mezzo is to be found at some points in both Rb and Urb (both northern manuscripts). Since the exact relationship between Rb and Urb is one of the key points of enquiry of the project, it seemed particularly important to eliminate elements which might suggest an affiliation based on geography rather than on familial descent.

Occasionally an unusual and distinctive formal variant is retained, as for example omne for ogne and neum for nessun in Rb ; suor for sudore in Ham; rugumando for ruminando in Triv; and on for ogne in Ash. All these distinctive formal variants occur in one manuscript only; they do not affect the analysis of manuscript relationships, since that analysis discards all variants found in just one manuscript, and it seemed helpful to retain them in the display.

Certain forms of common verbs, though strictly speaking no more than formal variants, differ so markedly from one another that they too are retained in the display: thus, for example, ennolsono; foralsarialsarebbe; fuor/furon; dovria/dourebbe; fecer/fenno/fecion/fero. Some of these variant verb forms will display of necessity because the difference in the number of syllables they contain will affect the scansion of the line, but we have chosen to display them even when this is not the case and there is no effect on metre. Where a verb form can be misleading, it too is retained in the display. Thus in Urb verbs in the first person reflexive past historic characteristically take a form which looks like a third person verb with pronoun object (thus volsemi rather than the expected volsimi, I turned). The form vidi (with metafonesi) for vedi, 'you see', might easily be understood to mean 'I saw': it too is retained in the display since to eliminate it would remove what could be interpreted as a different reading.

As a general rule, if there are metrical implications we retain a formal variant in the display: thus at Par. vi 1 aguglia appears as a variant on aquila because the accent falls on a different syllable and so the pattern of stress in the line is altered. At Inf. xxvii 41 aquila appears as a variant on aguglia for the same reason.

## True variants

Where there are genuine variant readings, these are listed under the base text reading in green, so that they are clearly distinguishable from the base text itself. Thus Inferno i 5 displays like this:

| 5 esta selva selvaggia e aspra e forte |  |
| :---: | :--- |
| esta | Ash Mart Rb PET |
| Quella | Ham |
| questa | LauSC Triv Urb FS |
| selva selvaggia | Ash Ham LauSC Mart Rb-orig Rb-c1 Triv Urb FS PET |
| e | Ash-orig Ham Mart Rb Triv Urb FS PET |
| om. | Ash-c1 LauSC |
| aspra | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| e | Ash Ham LauSC Mart Rb-c1 Triv Urb FS PET |
| om. | Rb-orig |
| forte | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Where in the base text we have esta, in ms. Ham we find Quella and in the Sanguineti edition and in mss. LauSC, Triv and Urb questa. The first occurrence of the word $e$ is omitted in LauSC and in the corrected form of Ash (Ash-c1) it is clearly present, though erased, in Ash-orig, as a quick check of the manuscript image will confirm. The second occurrence of $e$ is omitted in $\mathrm{Rb}-$ orig but restored in $\mathrm{Rb}-\mathrm{c} 1$. At selva the readings of both Rb -orig and $\mathrm{Rb}-\mathrm{c} 1$ are regularised out against the base text. Here the Rb copyist has inadvertently repeated the word, writing selua selua seluaza, and then cancelled the superfluous selua. This is not a variant in any meaningful sense, and hence does not appear in the basic Collation display, although it remains retrievable in the Original Spelling display.

## Trivial errors

We have removed from the basic Collation display trivial errors subsequently corrected by the copyist, of whatever kind: inadvertent repetition, inadvertent anticipation, simple carelessness, and so on. On rare occasions we also regularise inadvertent omission of a single letter or abbreviation sign even if the scribe does not subsequently correct his mistake, where there is no possibility that a different word was intended and no possibility of creating incomprehension in
a reader: such cases - eg. where the scribe of ms . Rb writes mebra instead of membra at Purg. v 47 or rodinella for rondinella at Purg. ix 14 - are roughly equivalent to modern misprints which a reader can confidently correct without agonising over whether a subtlety in the original is being overlooked. Equally and oppositely, we regularise trivial errors involving a superfluous abbreviation sign, if the word is otherwise correct: thus at Inf. xxvi 43 ms . Ash surtõ is regularised to surto.

Such detail is not illuminating for the purposes of understanding either textual substance or transmission history, and failure to eliminate it would have led to a very cluttered apparatus. All these details are in any case immediately recoverable using the Original Spelling option. Indeed we recommend that as normal practice the Collation be viewed with this feature activated since the textual detail for a single line usually fits comfortably on the computer screen and minutiae like trivial error and self-correction in individual manuscripts can be taken in at a glance.

## Segmentation

True variants will often involve several words, as at Inf. iii 21:
21 mi mise dentro a le segrete cose.

| mi mise dentro | Ash Ham LauSC Mart Triv PET |
| :--- | :--- |
| Misemi dentro | Rb |
| dentro mi mise | Urb FS |
| a | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| le | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| segrete | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| cose | Ash Ham LauSC Mart Rb Triv Urb FS PET |

The phrase mi mise dentro is 'segmented', i.e. treated as a unit in the display. Segmentation will also occur with certain types of correction - whenever the
order of words in a line is altered by renumbering the words in it, as at Par. ii 126 in LauSC:

126 sì che poi sappi sol tener lo guado.
si che poi sappi sol tener
si che sol poi tener sappi
si che sol sappi poi tener
lo
guado

Ash Ham LauSC-c1 Mart-orig Rb Urb FS PET
LauSC-orig
Mart-c2 Triv
Ash Ham LauSC Mart Rb Triv Urb FS PET
Ash Ham LauSC Mart Rb Triv Urb FS PET
and whenever a marginal variant is on a phrase rather than on a single word, as at Purg. v 18 in LauSC:

18 perché la foga l' un de l' altro insolla».

| perche | Ash Ham LauSC Mart Rb Triv FS PET |
| :--- | :--- |
| per chel | Urb |
| la | Ash Ham LauSC Mart Rb Triv FS PET |
| a | Urb |
| foga | Ash Ham LauSC Mart-orig Rb Urb FS PET |
| fama | Mart-c2 Triv |
| 1 un de 1 altro insolla | Ash Ham LauSC-orig Mart Rb Triv Urb FS PET |
| de ll un 1 altro insolla | LauSC-c2 |

Here the display is less economical than one would have liked (there are in fact no variants on the phrase $l$ altro insolla) but this display is imposed by the state of the text in ms. LauSC. Occasional overlapping of corrections in more than one manuscript may create quite lengthy segmentations, and indeed the reordering of words in a line may occasionally impose segmentation of the whole line, as at Inf. xxv 137.

```
137 suffolando si fugge per la valle,
suffolando si fugge per la valle PET
    suffolando si fuggi per la valle Ash Ham LauSC-orig Mart-c2 Triv Urb FS
    si fuggi sufolando per la ualle LauSC-c1
    Si fugge sufolando per la ualle Mart-orig
    Sofilando sen fugi per la ualle Rb
```

Occasionally, in the interests of clarity of presentation, the preposizione articolata (or the preposizione articolata and the word which follows it) is segmented, in order to achieve a display where the different spelling and formal variants in the various witnesses can be appreciated at a glance. Thus the display at Inf. i, 110 is:

```
110 fin che l' avrà rimessa ne lo 'nferno,
    fin Ash LauSC Triv Urb FS PET (fin), Ham Mart Rb (Fin)
    che Ash Ham LauSC Mart Rb Triv Urb FS PET (che)
    1 Ash Ham LauSC Mart Rb Urb (l), Triv (ll), FS PET (l')
    avra Ash Ham LauSC Rb Triv Urb (aura), Mart (haura), FS PET (avrà)
    rimessa Ash Ham LauSC Mart Triv Urb FS PET (rimessa), Rb (remessa)
    ne lo nferno Ash Ham (ne llo nferno), LauSC (ne ll inferno), Mart (nello inferno), Rb Triv Urb (ne
    l inferno), FS (ne l' inferno,), PET (ne lo 'nferno,)
```


## Genuine errors

Genuine errors are always shown as variants. The overwhelming majority of these are metrical errors. A formal variant which is in itself trivial and does not affect meaning may create a line with too many or too few syllables. Such formal variants are retained in the display since in context they are errors. Thus we find at Inf. i 6:

6 che nel pensier rinova la paura!

| che | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| :--- | :--- |
| nel | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| pensier | Ash Ham-c1 LauSC-c1 Mart Rb Triv Urb FS PET |
| pensar | Ham-orig |
| pensiero | LauSC-orig |
| rinova | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| la | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| paura | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Here pensar is a genuine variant on pensier, but pensiero is an error since it creates a line with twelve syllables. A similar thing happens with the alternatives diritta and dritta at Inf. i 3:

3 ché la diritta via era smarrita.

| che | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| :--- | :--- |
| la | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| diritta | Ash Ham LauSC Mart Triv Urb FS PET |
| drita | Rb |
| via | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| era | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| smarrita | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Here the reading drita in ms. Rb creates a line which is one syllable short. At Inf. 184 :

84 che m' ha fatto cercar lo tuo volume.

| che | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| :--- | :--- |
| $m$ | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| ha | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| fatto | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| cercar lo | Ash LauSC-c1 Mart Rb Triv Urb FS PET |
| cercare lo | Ham LauSC-orig |
| tuo | Ash Ham LauSC Mart-orig Mart-c2 Rb Triv Urb FS PET |
| volume | Ash Ham LauSC Mart Rb Triv Urb FS PET |

the Ham reading cercare creates a line with twelve syllables. There are countless examples of this kind of error in the 14,233 lines of the poem, and all of them are retained in the Collation.

A common alternative which often creates metrically faulty lines is spirito/spirto. Dante uses both forms of the word, but scribes are not always as alert as the author to the metrical implications of choosing one form rather than another. Thus at Inf. iv 119 mi fuor mostrati li spiriti magni Rb's spirti is clearly an error:

| 119 mi fuor mostrati li spiriti magni, |  |
| :--- | :--- |
| mi | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| fuor | Ash LauSC Mart-orig Mart-c2 Rb Triv Urb FS PET |
| furon | Ham |
| mostrati | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| li | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| spiriti | Ash Ham LauSC Mart Triv Urb FS PET |
| spirti | Rb |
| magni | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Conversely, at Inf. xi 19 Tutti son pien di spirti maladetti Ash's spiriti is an error:

19 Tutti son pien di spirti maladetti;

| Tutti | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| :--- | :--- |
| son | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| pien | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| di | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| spirti | Ham LauSC Mart Rb Triv Urb FS PET |
| spiriti | Ash |
| maladetti | Ash Ham LauSC Mart Rb Triv Urb FS PET |

There is scarcely an occurrence of the word in the poem in either form which does not generate an error of this kind in one manuscript or another.

Occasionally an alert copyist will compensate for an extra or missing syllable by adjusting something else in the line and creating another variant. Thus Inf. i 116 vedrai li antichi spiriti dolenti appears in ms. Urb as: e uedrai gli antichi spirti dolenti:

116 vedrai li antichi spiriti dolenti,

| vedrai | Ash Ham LauSC Mart Triv PET |
| :--- | :--- |
| E udirai | Rb |
| e vedrai | Urb FS |
| li | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| antichi | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| spiriti | Ash Ham LauSC Mart Triv PET |
| spirti | Rb Urb FS |
| dolenti | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Inf. iv 32 che spiriti son questi che tu vedi appears in ms . Rb as che spirti sono questi che tu uedi:

32 che spiriti son questi che tu vedi?
che
spiriti spirti
son sono
questi Ash Ham LauSC Mart Rb Triv Urb FS PET
che Ash Ham LauSC Mart Rb Triv Urb FS PET
tu Ash Ham LauSC Mart Rb Triv Urb FS PET
vedi Ash Ham LauSC Mart Rb Triv Urb FS PET

All these variants are recorded in the collation.

An alternative mode for accessing the variants is to click on a word in the transcription of a single manuscript. This produces a pop-up window in which the same information is displayed in a different format.


## Regularisation to base text Petrocchi

In creating the Collation we always regularised to the base text where that was possible, i.e. all spelling and formal variants were regularised to the spelling and form chosen by Petrocchi in his edition. They display alongside the base text as alternative possible forms of it.

It is often the case that where the two print editions differ, regularisation to the Sanguineti text would be equally possible, i.e. the manuscript evidence supports both the Petrocchi and Sanguineti readings. These are instances where the two editors differ only in the way in which they divide a word or group of letters, the division reflecting a difference in meaning or emphasis, as in the instances examined in the following paragraphs. The reader must use the Collation bearing in mind this possibility, which in any case is always readily apparent from the full display.

## Word division

There are cases where a given manuscript reading can be interpreted in two or more different ways, depending on whether or how one chooses to divide a word or group of letters. A very common case is manuscript che which can be interpreted as a single word che (relative pronoun: 'which', 'that') or ché (conjunction: 'for', 'because') or as two words ch'e' (relative pronoun plus singular or plural pronoun subject: 'which he', 'which they') or as ch'è (relative pronoun plus verb: 'which is'). These distinctions, which are immediately apparent in printed editions with their use of accents and punctuation, are not clear in manuscripts. Here are examples - the initial citation in each case is from the Petrocchi edition - to illustrate these possibilities (the reader is reminded that our transcription practice spaces words in accordance with the Petrocchi readings where there are ambiguities of this kind).

Purg. vii 75 fresco smeraldo in l'ora che si fiacca,

75 fresco smeraldo in l' ora che si fiacca,

| fresco | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| :--- | :--- |
| smeraldo | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| in 1 ora | LauSC Mart Rb Triv Urb FS PET |
| ne 11 ora | Ash |
| allora | Ham |
| che | Ash Ham Mart Rb Triv Urb PET |
| ch e | LauSC FS |
| si | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| fiacca | Ash Ham LauSC Mart Rb Triv Urb FS PET |

Here Petrocchi reads che while Sanguineti prefers ch'e'. The manuscripts which have che have been regularised to Petrocchi, but could equally well be regularised to ch'e', while chel in ms. LauSC can only be regularised to Sanguineti, since it clearly expresses the singular pronoun subject.

Purg. vii 51 o non sarria ché non potesse?».

```
o non Ash Ham Rb Triv (o non), Mart-c2 PET (o non)
    o uer LauSC (o uer)
    o pur Mart-orig Urb FS (o pur)
sarria Mart-orig PET (sarria)
    saria Ash Urb FS (seria), Ham LauSC Mart-c2 Rb Triv (saria)
che Ash Ham LauSC Mart Rb Triv Urb (che), PET (ché)
    ch e FS (ch' e')
non Ash Ham Rb Triv (non), LauSC Mart Urb FS PET (non)
potesse Ash Ham LauSC Mart Rb Triv Urb (potesse), FS (potesse?»), PET (potesse?».)
```

Here ms. che is interpreted by Petrocchi as ché and by Sanguineti as ch'e' (o pur seria ch'e' non potesse?). The word che in all manuscripts has been regularised to Petrocchi but it could equally well be regularised to Sanguineti.

Purg. xi 137 ch'e' sostenea ne la prigion di Carlo

```
137 ch' e' sostenea ne la prigion di Carlo,
    ch e Ash Ham LauSC Triv Urb (ch e), Rb (Ch e), PET (ch' e')
    che Mart (Che), FS (che)
sostenea Ash Ham LauSC Mart Rb Triv Urb FS PET (sostenea)
ne la Ash Ham LauSC Rb Triv Urb (ne lla), Mart PET (ne la), FS (nella)
prigion Ham Mart Triv PET (prigion), LauSC Rb Urb FS (pregion)
    pregio Ash (pregio)
di Ash Ham LauSC Mart Rb Triv Urb FS PET (di)
Carlo Ash Ham (charlo), LauSC Triv (karlo), Mart Urb (Carlo), Rb (carlo), FS PET (Carlo,)
```

Here Petrocchi interprets che as ch'e', while Sanguineti reads it as a simple che. Mart is regularised to Sanguineti since the Aldine editor clearly understood che as an undivided unit (ch'e' would normally be expressed in the printed text with the apostrophe as ch'e). The other manuscripts could regularise to Sanguineti as well as to Petrocchi.

Inf. xxi 131 non vedi tu ch'e' digrignan li denti
131 non vedi tu ch' e' digrignan li denti

```
non Ash LauSC Triv Urb FS PET (non), Ham (non), Mart Rb (Non)
vedi Ash Ham LauSC Mart Rb Triv Urb (uedi), FS PET (vedi)
tu Ash Ham LauSC Mart Rb Triv Urb FS PET (tu)
ch e Ash LauSC Rb Urb (ch ei), FS (ch' ei), PET (ch' e')
    che Ham Mart Triv (che)
digrignan Ash LauSC Mart Rb Urb FS PET (digrignan), Ham (digrignian), Triv (digringnan)
li Ash Ham LauSC Mart Rb Triv Urb FS PET (li)
denti Ash Ham LauSC Mart Urb PET (denti), Rb (dienti), Triv (denti), FS (denti,)
```

Petrocchi and Sanguineti agree on the reading ch'e' (or ch'e $i$ ). The Aldine printed text reads che with no apostrophe, showing that the editor took che to be a simple relative pronoun. Here all manuscripts could be regularised to base text, but given that some manuscripts explicitly express the pronoun subject as ei, it seemed more appropriate to leave the form in Ham and Triv aligned with Mart. As this example makes clear, the choice in instances like these reflects editorial judgment about what makes a clearer and more helpful display.

Purg. xxv 95 e in quella forma ch'è in lui suggella

```
95 e in quella forma ch' è in lui suggella
    e in LauSC-orig (et in), Mart-c2 (Et In), Triv (et in), PET (e in)
    in Ash Ham LauSC-c1 Urb FS (in), Mart-orig Rb (In)
    quella Ash Ham LauSC Mart Rb Triv Urb FS PET (quella)
    forma Ash Ham LauSC Mart Rb Triv Urb FS PET (forma)
    ch e Ash Ham LauSC Rb Triv Urb (ch e), PET (ch' è)
    che Mart FS (che)
    in lui Ash (i llui), Ham LauSC-c2 (in lui), Mart Rb Triv Urb FS PET (in lui)
        [.] lui LauSC-orig ([.] lui)
    suggella Ash Ham LauSC Mart Triv PET (suggella), Rb Urb (sugiella), FS (suggella)
```

Here Petrocchi interprets che as ch'e, while Sanguineti, again in ageement with the Aldine text, has a simple che: so again Mart is regularised to Sanguineti, but the other manuscripts are regularised to base text though they could equally well go with Sanguineti.

There are scores of examples of this kind of decision to be made just in relation to the single word che. The display in each case is the one which seems to the editor to be the most informative and illuminating; but all the information is to hand and readers can see that sometimes other arrangements would be equally possible.

Occasionally a variant elsewhere in the line will impose the interpretation, and hence the display, at a given point. Thus at Inf. xvii 24 su l'orlo ch'e di pietra e 'l sabbion serra the effect of the later part of the line must be considered: the reading must be a simple che (and not ch'é) in those manuscripts which have il sabbion and not $e l$ sabbion. Thus we have an alternative version of the whole line: su l'orlo che di pietra il sabbion serra. Here the display is:

```
24 su l' orlo ch' è di pietra e 'l sabbion serra.
    su Ash Ham LauSC Triv Urb FS PET (su), Mart Rb (Su)
\(1 \quad\) Ash LauSC Mart Rb Triv Urb (l), FS PET (l)
    in \(1 \quad \operatorname{Ham}(\mathrm{i} n \mathrm{l})\)
orlo Ash Ham LauSC Mart Rb Triv Urb FS PET (orlo)
ch e di pietra Urb (che e de pietra), FS (che è di pietra), PET (ch' è di pietra)
    che di pietra Ash Ham LauSC Mart Rb Triv (che di pietra)
e 1 sabbion Urb (e 1 sabion), FS (e 'l sabion), PET (e 'l sabbion)
    il sabbion Ash Ham Mart-c2 Triv (il sabbion), LauSC Rb (il sabion), Mart-orig (il sebbion)
serra Ash LauSC Mart Rb Triv Urb (serra), Ham (serra), FS PET (serra.)
```

We have regularised the Sanguineti text (su l'orlo che è di pietra e'l sabion serra) and ms. Urb to Petrocchi here: it is essentially the same reading, but without elision.

As noted, there are scores of choices of this kind, and there are dozens of variations on them. As these examples show, there is nothing mechanical about the process of regularisation. Editorial discretion has been used at every point, and involves an acute awareness of and sensitivity to possible meanings and implications of variant forms. Decisions had to be made for practical purposes, but, as noted, this does not mean that manuscripts regularised to Petrocchi necessarily impose that interpretation; often they are perfectly compatible with the Sanguineti interpretation, especially in these cases involving very common connectives.

The same thing happens, though less frequently, with the alternatives onde / ond'e' / ond'è, come / com'e' / com'è and (d)oue / (d)ou'e' / (d)ov'è, and occasionally with se /s' $e^{\prime}$ as at Inf. xx 69.

First person forms of verbs sometimes raise the same question of whether a unit or group of letters is to be understood as one or two words. For example, at Par. xxiii 28 it is impossible to know if ms. uidi means vidi or vid' $i$ ': both editors on this occasion opt for vid' $i$ ', the presence of the separate first person singular pronoun being indicated in the printed text by punctuation (already in the Aldine text the apostrophe regularly serves this function). In this instance all the manuscripts are unproblematically regularised to this reading. By contrast at Par. xxxiii 85 ms . uidi is interpreted as vidi by Petrocchi and as vid' $i$ ' by Sanguineti. Here we regularise uidi to Petrocchi, as we do whenever there is a choice of this kind, but the Original Spelling display makes it clear that regularisation to Sanguineti would be equally possible, i.e. the Sanguineti interpretation has equal manuscript support.

```
85 Nel suo profondo vidi che s' interna,
    Nel Ash Ham LauSC Mart Rb Triv Urb FS PET (Nel)
    suo Ash Ham LauSC Rb Triv Urb FS PET (suo), Mart (su)
    profondo Ash Ham LauSC Rb Triv Urb FS PET (profondo), Mart (profundo)
    vidi Ash LauSC Mart Urb (uidi), Triv PET (vidi)
    vid i Ham Rb (uid io), FS (vid' i')
    che Ash Ham LauSC Mart Rb Triv Urb FS PET (che)
    s Ash Mart Rb Triv Urb (s), Ham (ssi), LauSC (si), FS PET (s')
    interna Ash Ham LauSC-orig Mart Rb Triv Urb FS (interna), LauSC-c1 (nterna), PET
        (interna,)
```

Other examples where the same manuscript reading can be interpreted in two different ways include the following (again the initial citation is from the Petrocchi edition):

Inf. ii 124-125 tre donne benedette / curan di te ne la corte del cielo Sanguineti prefers: cur an di te.

125 curan di te ne la corte del cielo,

| curan | Ash Triv Urb PET (curan), Mart Rb (Curan) |
| :--- | :--- |
| Chura | Ham (Chura) |
| cur an | LauSC-orig (cura an), LauSC-c1 (cur an), FS (cur' àn) |
| di | Ash Ham LauSC Mart Triv Urb FS PET (di), Rb (de) |
| te | Ash Ham LauSC Mart Rb Triv Urb FS PET (te) |
| ne la | Ash Ham LauSC Rb Triv Urb (ne lla), Mart PET (ne la), FS (nella) |
| corte | Ash Ham LauSC Mart Rb Triv Urb FS PET (corte) |
| del | Ash Ham LauSC Mart Rb Triv Urb FS PET (del) |
| cielo | Ash Ham LauSC Mart Rb Triv Urb FS (cielo), PET (cielo,) |

Here LauSC (in both the original version and the corrected version) imposes the second meaning and is therefore regularised to Sanguineti. The other manuscripts could be taken either way, but in accordance with our practice are regularised to Petrocchi.

Inf. ix 8 Tal ne s'offerse
Sanguineti prefers: sofferse.

```
Tal Ash Ham LauSC Mart Rb Triv Urb (tal), FS PET (Tal)
ne Ash Ham LauSC Mart Rb Triv Urb FS PET (ne)
s offerse Ash LauSC-c1 Mart Urb (s offerse), Ham LauSC-orig Rb Triv (s oferse), PET (s'
    offerse.)
sofferse FS (sofferse.)
```

Mart imposes the Petrocchi reading (there is an apostrophe in the printed text to indicate that $s$ is a reflexive pronoun), but all the other manuscripts could be taken either way. We have as is our practice transcribed with the Petrocchi spacing and the word thus appears against base text $s$ offerse, although clearly it supports the Sanguineti interpretation equally.

Purg. xix 8 ne li occhi guercia, e sovra i piè distorta, Sanguineti prefers: sovra i piedi storta

```
8 ne li occhi guercia, e sovra i piè distorta,
    ne li Ash (ne gl), Ham Urb (ne gli), LauSC Triv (ne lli), Mart-c2 (Ne gli), Rb (Ne gl), FS
                        (negli), PET (ne li)
    Congli Mart-orig (Con gli)
    occhi Ash Rb Urb (ochi), Ham LauSC Mart Triv PET (occhi), FS (oc[c]hi)
    guercia Ash Ham LauSC Mart-c2 Triv Urb (guercia), Rb (guerça), FS PET (guercia,)
    guerci Mart-orig (guerci)
    e Ash Rb Urb FS PET (e), Ham Triv (et), LauSC Mart (et)
    sovra Ash Ham Mart Rb Triv (soura), LauSC Urb FS (sopra), PET (sovra)
    i pie distorta LauSC Rb Triv (i pie distorta), PET (i piè distorta,)
    pie distorta Ash Mart (pie distorta), Ham (pie distorta)
    i piedi storta Urb (i pedi storta), FS (i p[i]edi storta,)
```

Inf. xii 27 mentre ch'e' 'nfuria, è buon che tu ti cale
Sanguineti prefers: mentre ch'e 'n furia

Here the editions differ in two respects: $e$ is a pronoun in Petrocchi but part of the verb to be in Sanguineti, infuria is a verb in Petrocchi but a prepositional phrase in Sanguineti. The Aldine printed text is identical to Sanguineti, but the other manuscripts, with the exception of the anomalous Ham, can regularise to either reading. We regularise to Petrocchi, as is our standard practice, but we can note that a case could be made for thinking that Mart-c2 is to be understood as a simple che (giving a third interpretation of the line).

```
27 mentre ch' e' 'nfuria, è buon che tu ti cale».
mentre Ash Ham LauSC Triv Urb FS PET (mentre), Mart (Mentre), Rb (Mentre)
ch e nfuria Ash LauSC Urb (ch e nfuria), Rb (ch e infuria), Triv (ch e infuria), PET (ch' e' 'nfuria,)
    che furia Ham (che furia)
    ch e n furia Mart-orig (ch e n furia), FS (ch' è 'n furia,)
    che infuria Mart-c2 (che infuria)
e buon che Ash Ham LauSC Mart-c2 Rb (e buon che), Triv (e buon ke), Urb (e bon che), FS (è
    bon che), PET (è buon che)
    e buon Mart-orig (e buon)
tu Ash Ham LauSC Mart Rb Triv Urb FS PET (tu)
ti Ash Ham LauSC Mart Rb Triv Urb FS PET (ti)
cale Ash Ham LauSC Mart Triv Urb (cale), Rb (chale), FS PET (cale».)
```

There are two striking cases where Petrocchi and Sanguineti agree in their interpretation, but where spacing and word division in some manuscripts suggests that their copyists took the meaning differently. Thus at Purg. xx 119 secondo l'affezion ch'ad ir ci sprona both Petrocchi and Sanguineti read ad ir, but the spacing in some manuscripts clearly shows their scribes took the meaning to be a dir; this is reflected in the display.

```
119 secondo l' affezion ch' ad ir ci sprona
    secondo Ash LauSC Triv Urb FS PET (secondo), Ham (secondo), Mart Rb (Secondo)
l Ash Ham LauSC Mart Rb Triv Urb (l), FS PET (l')
affezion Ash (acfection), Ham (afection), Mart (affettion), Rb (afecion), Triv Urb (affection), FS
        PET (affezion)
    affectione LauSC (affectione)
ch ad ir ci Ham Triv (chadir ci), Rb (che adir ci), FS PET (ch' ad ir ci)
    chadire Ash (chadire)
    ch a dir ci LauSC-orig (che ad dir ci), LauSC-c1 (ch ad dir ci), Mart (ch a dir ci), Urb (cha dir
                    ci)
sprona Ham LauSC Mart Rb Triv Urb FS PET (sprona)
    asprona Ash (asprona)
```

Again at Inf. xxvi 14 che n'avea fatto iborni a scender pria some scribes write $i$ borni as two clearly separated words. In these instances where manuscript spacing seems clearly indicative of scribal understanding and there are two possible interpretations - two different readings - we reflect the manuscript spacing exactly in the transcription, and regularise accordingly.

| 14 che n' avea fatto iborni a scender pria, |  |
| :--- | :--- |
| che | Ash Ham LauSC Triv Urb FS PET (che), Mart Rb (Che) |
| n | Ash (nn), Ham LauSC Mart Rb Triv Urb (n), FS PET (n') |
| avea | Ash Ham Urb (auea), FS PET (avea) |
| auean | LauSC Triv (auean), Mart (hauean), Rb (auien) |
| fatto | Urb FS PET (fatto) |
| fatti | Ash LauSC (facti), Ham Rb (fatti) |
| fatte | Mart (fatte), Triv (facte) |
| iborni | Ash LauSC-orig FS PET (iborni) |
| lordi | Ham (lordi) |
| borni | LauSC-c1 (borni) |
| i borni | Mart Rb Triv Urb (i borni) |
| a | Ash Ham LauSC Mart Rb Triv Urb FS PET (a) |
| scender | Ash Ham LauSC Mart Triv Urb FS PET (scender), Rb (sender) |
| pria | Ash Ham LauSC Mart Rb Triv Urb (pria), FS PET (pria,) |

A slightly different case occurs at Inf. x 117 che mi dicesse chi con lu' istava. Here both Petrocchi and Sanguineti read chi con lu' istava, whereas all the manuscripts without exception have chi con lui staua with a marked space between lui and staua. The Petrocchi/Sanguineti reading is necessary for the metre, with a dialefe between lu | istava to give the mandatory eleven syllables. The display reflects this situation.

117 che mi dicesse chi con lu' istava.

```
che Ash Ham LauSC Triv Urb FS PET (che), Mart Rb (Che)
mi Ash (mmi), Ham LauSC Mart Rb Triv Urb FS PET (mi)
dicesse Ash Ham LauSC Mart Rb Triv Urb FS PET (dicesse)
chi Ash Ham LauSC Mart Rb Triv Urb FS PET (chi)
con Ash (cho), Ham (co), LauSC Mart Rb Urb FS PET (con), Triv (con)
lu istava FS PET (lu' istava.)
    lui staua Ash Ham (llui staua), LauSC Rb Triv Urb (lui staua), Mart-c2 (lui staua)
    lui si staua Mart-orig (lui si staua)
```

Finally we can note that Petrocchi several times interprets ms. tutti as tutt $i$ with the article expressed, where Sanguineti prefers tutti with no article (as at Par. xvi 111; Par. xxxi 86; Par. xxxiii 46). Here as is our practice we regularise all the manuscripts to the Petrocchi base text although equally they could be interpreted as supporting Sanguineti's text.

The definite article: il/lo; il/el
Variations in the form of the definite article, in isolation or in conjunction with other words, present another series of problems. Depending on context, the forms il and lo may be regularised or not. Here are some examples (again the initial citation is the Petrocchi text):

Par. v 69 ritrovar puoi il gran duca de' Greci
The variant lo gran duca in mss. Ash Ham and LauSC is regularised because it presents no metrical problems.

Inf. xii 23 c'ba ricevuto gia 'l colpo mortale
The variant in ms. Ham lo colpo mortale creates an extra syllable and thus a line which is metrically faulty: $l o$ will display as a variant in the Collation.

Inf. ix 55 Volgiti'n dietro e tien lo viso chiuso
The line appears in some manuscripts as Volgiti $n$ dietro e tieni l viso chiuso. There is no difference metrically between tien lo and tieni'l (both versions of the line have the required eleven syllables), so tieni $l$ has been regularised and does not display as a variant.

The same is true at Par. x 29 che del valor del ciel lo mondo imprenta. In some manuscripts this appears as: che del valor del cielo il mondo imprenta. Again the lines are exactly equivalent, there is no problem metrically, and cielo il is regularised to ciel lo and does not appear as a variant.

At Purg. ii 78 che mosse me a far lo somigliante ms. Triv's che mosse me a fare il somiglante is exactly equivalent and has been regularised to base text, but ms. LauSC's fare $l o$ is an error since it creates an extra syllable and results in a 12syllable line: fare lo therefore displays as a variant, but fare il does not.

78 che mosse me a far lo somigliante.

```
che Ash Ham LauSC Triv Urb FS PET (che), Mart Rb (Che)
mosse Ash Ham LauSC Mart Rb Triv Urb FS PET (mosse)
me Ash Ham LauSC Mart Triv Urb FS PET (me), Rb (mi)
a Ash Ham Mart Rb Triv Urb FS PET (a), LauSC (ad)
far lo Ash (ffar lo), Ham Mart Rb Urb FS PET (far lo), Triv (ffare il)
fare lo LauSC (fare lo)
somigliante Ash Rb (simiglante), Ham (simigliante), LauSC Mart Urb (simigliante), Triv
    (somiglante), FS (simigliante.), PET (somigliante.)
```

The same thing happens at Par. xiii 97 non per sapere il numero in che enno. Here saper lo is equivalent to sapere il and can be regularised but sapere lo with its supernumerary syllable is an error.

Purg. xii 49 Mostrava ancor lo duro pavimento

Three manuscripts (Ham, Rb, Urb) have the metrically acceptable Mostrava ancora il duro pavimento. LauSC-orig has a third possible if slightly awkward version of the line: Mostrava anchora lo dur pavimento, which has the required eleven syllables. But when the correcting hand cancels the final $a$ of ancora, he creates a metrically faulty line (ten syllables only): Mostrava ancor lo dur pavimento. In LauSC-orig dur for duro was not an error, but arguably it has become one in LauSC-c1; dur in Urb can only be an error in context (and Sanguineti emends to dur[o], supplying the missing syllable). The display attempts to make these various considerations apparent, or at any rate supply all the information to enable the reader to understand the issues involved.

```
4 9 \text { Mostrava ancor lo duro pavimento}
    Mostrava Ash Ham Rb Triv Urb (Mostraua), LauSC (Monstraua), Mart (Mostrau), FS PET
                        (Mostrava)
    ancor lo Ash Triv PET (ancor lo), Ham Rb Urb (anchora il), LauSC-c1 Mart (anchor lo), FS
                        (ancora il)
    anchora lo LauSC-orig (anchora lo)
    duro Ash Ham Mart Rb Triv PET (duro), FS (dur[o])
    dur LauSC Urb (dur)
    pavimento Ash (pauimento), Ham Rb (pauimento), LauSC Mart Triv Urb (pauimento), FS PET
                        (pavimento)
```

There are scores of cases of similar complexity. It happens occasionally that Petrocchi's el ('and the') appears in a manuscript as a simple definite article (il or even lo): thus at Inf. vi 25 El duca mio (mss. Ham Triv Mart-c2: Lo duca mio); at Inf. xiii 16 El buon maestro (mss. Ham Triv Mart-c2 LauSC: Lo buon maestro); Purg. xiii 37 El buon maestro (Mart: Lo, ms. Rb Il). Here the forms with the simple article are listed as variants.

In ms. Ham frequently and in mss. Ash, Rb and Triv less often we find cases where the final $l$ of the definite article has been assimilated to the initial $l$ or $r$ of the following word: thus i lungo for il lungo at Inf. iv 146; de loco for del loco at Inf. xxi 24; de regno for del regno at Inf. xxii 48 and Purg. xx 55; a letto for al letto at Inf. xxiii 52; de lungho for del lungo at Inf. xxix 53; i lume for llume at Purg. iii 96; de retaggio for del retaggio at Purg. vii 120; i re for il re at Purg. vii 130; i rrider for il rider Par. xxx 77; and so on. In cases of this kind we segment the two words and regularise the reading, which is a formal variant, as here at Inf. xxi 24:

```
24 mi trasse a sé del loco dov' io stava.
    mi Ash Ham LauSC Triv Urb FS PET (mi), Mart Rb (Mi)
    trasse Ash Ham LauSC Mart Rb Triv Urb FS PET (trasse)
    a Ash Ham Mart Rb Triv Urb FS PET (a), LauSC (ad)
    se Ash Ham (sse), LauSC Mart Rb Triv Urb (se), FS PET (sé)
    del loco Ash (del luogo), Ham (de loco), LauSC Mart Triv PET (del loco), Rb Urb FS (del luoco)
    dov Ash Ham LauSC Mart Rb Triv Urb (dou), FS PET (dov')
    io Ash Ham LauSC Rb Triv Urb FS PET (io), Mart (i)
    stava Ash Ham LauSC Mart Rb Triv Urb (staua), FS PET (stava.)
```

Regularisation of the prepositions da, di, de, dei, de', d'i
Printing conventions enable the modern editor to distinguish between variant forms of prepositions which may be identical in their manuscript form. It follows that the same manuscript form can be regularised to versions of the base text representing different printed forms, depending on context.

Manuscript $d a$ regularises to a simple $d a$ in some contexts (as at Inf. x $61 E$ io a lui: Da me stesso non vegno), and to $d a(=d a)$ in others. Manuscript dai can also regularise to this last form. Thus at:

Par. xxxiii 68 da' concetti mortali a la mia mente
$d a$ (in mss. Triv Rb and in Mart) and dai (in mss. Ash Ham LauSC and Urb) both regularise to Petrocchi's $d a$ ' (base text $d a$ ). They could equally well both regularise to Sanguineti's dai.

Manuscript $d i$ may regularise, depending on context, to a simple $d i$ or to $d i$ (=d'i, a form used frequently by Petrocchi, less frequently by Sanguineti, to signify modern $d e i$ ). Manuscript de may regularise to base text de (Petrocchi's $d e$ ) or $d e i$ or $d i$ (Petrocchi's $\left.d^{\prime} i\right)$ : these are equivalent forms of the masculine plural preposizione articolata. Manuscript dei also regularises to $d i$, as at Inf. xx 3 la prima canzon, ch'è d'i sommersi

The usus scribendi of individual scribes must also be taken into account in the regularisation process: forms of the preposition in the northern mss. Rb and Urb differ from standard Tuscan forms. Thus $d i$ in ms . Rb will often regularise to de as part of the preposizione articolata, as at Inf. xxv 1 Al fine di le sue parole; Inf. iv 95 signur di l altissimo chanto; Par. viii 11 il vocabol di la stella, and passim. Conversely, $d e$ in ms. Rb can very often be regularised to $d i$ : this is often just a northern form for the simple preposition $d i$, not a form indicating a plural of the preposizione articolata, as at Inf. i 74 che venne de Troia; Par. xxxiii 66 si perdea la sentenza de Sibilla; Par. x 131 de Ysidoro de Beda e de Ricardo, and passim. (A parallel phonetic development in Urb has se as the normal form of the third person reflexive pronoun: this will regularise to si.)

Sometimes the two editors interpret manuscript di differently, as at:
Inf. xxvii 44 e di Franceschi sanguinoso mucchio
Sanguineti: d'i Franceschi

Purg. vii 16 O gloria di Latin
Sanguineti: d'i Latin

Purg. xxi 48 la scaletta di tre gradi breve
Sanguineti: d'i tre gradi brevi

Purg. xiv 67 l’annunzio di dogliosi danni Sanguineti: d'i dogliosi danni

In these cases we regularise to the Petrocchi base text as usual, though Sanguineti's choice is equally supported by the manuscripts.

## The 'floating' apostrophe (apostrofo libero)

Petrocchi regularly uses a 'floating' apostrophe to indicate the elision of the definite article (a notional $i$ ) after conjunction $e$ when two terms are linked, as here: cacciando il lupo e' lupicini al monte (Inf. xxxiii 29). In these cases we segment the conjunction and following noun. Manuscript readings which elide the article (here Triv and Mart) and those which express it (here Rb, Urb and LauSC) will both regularise to the base text, as will Sanguineti's eilupicini.

```
29 cacciando il lupo e ' lupicini al monte
cacciando Ash Ham (chacciando), LauSC Triv Urb FS PET (cacciando), Mart (Cacciando), Rb
                                    (Chaciando)
il lupo Ash LauSC Rb Triv Urb FS PET (il lupo), Mart (1 lupo)
i lupi Ham (i lupi)
e lupicini Ash (et lupicini), Ham (e lupaccini), LauSC Urb FS (e i lupicini), Mart Triv (e lupicini),
                                    Rb (e i lupacin), PET (e ' lupicini)
al Ash Ham LauSC Mart Rb Triv Urb FS PET (al)
monte Ash LauSC Mart Urb FS PET (monte), Ham Rb Triv (monte)
```


## Dieresis

There are many cases where two adjacent vowels, normally elided and counting as a single syllable, must be treated as two syllables for a metrically correct reading of the line. The dieresis sign over one of the vowels (usually the first vowel but occasionally the second) indicates this syllabic value, and is used in these cases throughout the Petrocchi edition, where it is helpful in assisting the
reader to scan the line correctly. The following is a typical example: Inf. v 140 l'altro piangëa; si che di pietade. The Sanguineti edition does not use the dieresis sign, and where adjacent vowels are to be understood as having the value of two syllables, readers are left to deduce this for themselves. His version of this line reads simply l'altro piangea; si che di pietade - identical except for the lack of a dieresis sign over the $e$ of piangea. Likewise at Par. xxx 135 prima che tu a queste nozze ceni Sanguineti's pria only scans if we mentally put a dieresis over the $i$ of pria, that is, if we recognise that the word must count for two syllables.

One common instance which illustrates the difficulties connected with this divergence in editorial practice is the alternation between aere and aer in the two editions. Both forms of the word can be scanned as two syllables. Sanguineti, following ms. Urb, regularly uses the form aer where Petrocchi has aere, as in the examples which follow (the Petrocchi reading is cited first).

Inf. i 48 si che parea che l'aere ne tremesse
Sanguineti: si che parea che l'aer ne tremesse
Here clearly the word aer must count as two syllables, so here all manuscripts regularise to aere.

Inf. ii 1 Lo giorno se n'andava e l'aere bruno Sanguineti Lo giorno se n'andava e l'aer bruno

Inf. v 84 vegnon per l'aere, dal voler portate
Sanguineti: vengon per l'aer, dal disio portate
Inf. v 86 a noi venendo per l'aere maligno
Sanguineti: a noi venendo per l'aer maligno
Inf. vi 11 per l'aere tenebroso si riversa
Sanguineti: per l'aer tenebroso si riversa

Par. vii 125 l'aere e la terra e tutte lor misture
Sanguineti: l'aer, la terra e tutte lor misture

There are more than forty cases of this alternation. It was decided not to treat these as significant variants and aer has been regularised to aere in these many instances.

One common class of variants where dieresis comes into play consists of imperfect tenses of verbs, where we find forms in -ea and -ia alongside forms in -eva and -iva: -ëa with a dieresis has two syllables, -eva has two syllables, the meaning is identical and, if the following word starts with a consonant, the variant can be regularised, as at Par. xxxiii 137 veder voleva come si convene. Sanguineti's volea, found in mss. Ash Ham LauSC Urb and Mart-c2, needs a dieresis but can be regularised. If the following word begins with a vowel, this may affect the scansion and the variant will sometimes be retained as a true variant reading.

Basically, if a variant has a marked effect on scansion we retain it as a true variant; if the effect on scansion is non-existent or minimal it does not appear as a variant. Obviously there are some variants of this last kind which will simply be errors, as in these cases:

Inf. i 46 questi parea che contra me venisse (pareua in ms. Ash is an error, since it increases the syllable count to twelve, and displays as a variant);

Purg. xvi 16 Io sentia voci e ciascuna pareva
(sentiva in mss. Ash and Triv is an error, since the reading creates a twelvesyllable line, and it displays as a variant).

The alternatives prialprima have been treated in the same way. Where the substitution of one for the other creates no problem metrically, as in the case of Par. xxx 135 cited above, they can be regularised to one another. Where the
substitution creates a syllable too few or too many, they are retained as variants (errors), as at:

Purg. xiv 76 per che lo spirto che di pria parlòmi
Here prima gives an extra, superfluous, syllable and therefore displays as a variant in the collation.

In making decisions on regularising in some of the trickier cases with metrical implications it was very helpful to be able to consult the text of the Commedia marked up for scansion in the electronic resource prepared by David Robey as the basis for his study Sound and Structure in the Divine Comedy, Oxford University Press, 2000. ${ }^{150} \mathrm{I}$ am delighted that we have been able to include this metrically marked-up version of every line of the text in the Collation display, so that readers can themselves easily see how different variants affect scansion. Clicking on the word Metre in the top margin of the Collation display will bring up the metrically marked-up version of that line. For further details see Appendix B on this web site.

## Problems in Mart

The Aldine edition text, which displays in the collation as Mart-orig, presented particular problems for regularisation, mostly concerned with spacing and punctuation. With the exceptions noted in the General Transcription Note, we have scrupulously respected the spacing and the punctuation of the Aldine text (even though the punctuation does not appear in the transcription) and what can be gleaned from them about the meaning attributed to the text at different points by the Aldine editor.

[^85]The following examples will illustrate some of the problems.
i. Spacing

Par. v 15 che l anima sicuri di letigio

Mart's si curi appears as a variant.

Inf. viii 81 «Usciteci», gridò, «qui è l'intrata.»

The spacing and comma in Mart impose the interpretation of $c i$ as an indirect pronoun object:

## v/áte, a grido; qui e l'entratr.

## Vscite ci grido qui e 1 entrata

and this appears in the collation thus:
81 «Usciteci», gridò: «qui è l’ intrata».

| Usciteci grido | Ash Ham LauSC Triv (usciteci grido), Rb (Vsitici grido), Urb (usciteci griddo), FS |
| :--- | :--- |
|  | («Usciteci» gridò:), PET («Usciteci», gridò:) |
| Vscite ci grido | Mart (Vscite ci grido) |


| qui | Ash Ham LauSC Mart Rb Triv Urb (qui), FS PET («qui) |
| :--- | :--- |
| e | Ash Ham LauSC Mart Rb Triv (e), Urb (ee), FS (èe), PET (è) |
| 1 | Ash Ham LauSC Mart Rb Triv Urb (l), FS PET (l') |
| intrata | Ash Ham LauSC Mart Rb Triv (entrata), Urb (intrata), FS PET (intrata».) |

In interpreting the collation, the ease of access to the manuscript images and transcriptions is especially important for the Aldine edition.

## ii. Punctuation

Sometimes the punctuation imposes an interpretation which is at odds with the printed editions, as at

Inf. i 129 ob felice colui cu' ivi elegge
where Mart's cu iui $\grave{e}$ legge, with its grave accent, makes it unequivocal that $\grave{e}$ is to be understood as a verb. Again this is not apparent in the collation,

129 oh felice colui cu' ivi elegge!».

| oh | Ash LauSC Rb-c1 Triv Urb (o), Ham Mart (O), FS (oh), PET (oh) |
| :--- | :--- |
| om. | Rb-orig (om.) |
| felice | Ash Ham LauSC Mart Triv Urb FS PET (felice), Rb (Felice) |
| colui | Ash Ham LauSC Mart Rb Triv Urb FS PET (colui) |
| cu ivi elegge | Ash LauSC-c1 (cu iui elegge), LauSC-orig (cui iui elegge), Rb (chu iui elegie), |
|  | PET (cu' ivi elegge!».) |
| che iui eleggie | Ham (che iui eleggie) |
| cu iui e legge | Mart-orig (cu iui e legge) |
| che quivi elegge | Mart-c2 Triv (che quiui elegge), Urb (che quiui eleggie), FS (che quivi elegge!») |

but is clear as soon as one turns to the image and transcription:


Conversely, when the Aldine text fails to use punctuation where we might expect it, we respect the text as it is and do not regularise, even though the lack of punctuation may just be an oversight. Thus the various cases of $c b i$ when the sense clearly requires ch' $i^{\prime}$ and iui when the sense required is $i^{\prime} v i$, as at Inf. xii 35 cb'i' discesi qua giù nel basso inferno

## chi difafi qua gur nel bafo'nferno,

and Inf. xxiii 35 ch'io li vidi venir con l'ali tese

and Purg. vii 87 tra color non vogliate cb' io vi guidi

## Tra color nonnogliate, chini gridi.

In these cases the Mart readings (Cbi, Cbi and iui respectively) are not regularised - we would expect the Aldine text to use an apostrophe (ch'i, i'ui) as it normally does in these cases, as at Purg. iii 75

iii. Oddities

We respect the spacing and punctuation in Mart even when the reading it reflects is decidedly an oddity, as at Purg. x 12, or quinci or quindi al lato che si parte. Mart's al l'ato seems an aberration, and appears in the collation as a variant.
iv. Misprints

We have also respected what are clearly misprints in Mart (listed in the Mart Transcription Note) and these display as variants (errors).

Formal variants in rhyme position
It is not uncommon to find striking formal variants in the rhyme position. We regularise provided that the scribe has maintained consistency in the rhymesound through the three occurrences, as is usually the case (this is immediately apparent in the Original Spelling display). Thus for example at Inf. xxix 56-5860 Ash rhymes iustiça-tristiça-maliça; at Par. xxv 14-16-18 primiça-letiça-galliça; and at Par. xxxi 101-103-105 graça-croaça-saça. At Inf. v 2-4-6 Rb rhymes cingla-ringla-auingla; at Purg. xx 50-52-54 loysi-parisi-bisi. At Inf. vii 2-4-6 Urb rhymes chioç̧̧a-noç̧̧a-roçça; at Purg. xxiv 146-148-150 oleggia-meggia-oreggia; at Par. xviii 122-124-126 Urb Rb and Ham rhyme tempio, contempio, esempio; at Par. xxvi 125-127-129 Triv rhymes inconsumable-rationable-durable. Where, as occasionally happens, consistency is not maintained across the three lines or there are complicating factors, the imperfect rhymes display as variants.

## Sanguineti's use of the punto in alto

Among the typographical conventions employed in the Sanguineti edition is the punto in alto (not used anywhere by Petrocchi). It is used in a number of situations. Occasionally it marks a simple raddoppiamento sintattico, as at:

Inf. viii 37 E io a.llui (again at Inf. x 38 a.llui; Inf. x 61 E io a.llui; Inf. xiii 82 Ond' io a $\cdot$ llui). These cases are so straightforward that we have regularised them and they do not appear as variants in the basic Collation.

Much more often the punto in alto indicates the assimilation of a final consonant to the word which follows: frequent cases include the assimilation of final $-n$ of in or $u n$ and the assimilation of the $l$ which represents the definite article or the pronoun object, as in these instances:

Inf. xxix 36 e.ciò m' à fatto a sé esser più pio [Petrocchi: e in ciò]
Par. xxxi 39 e di Firenze i.popol giusto e sano [Petrocchi: in popol]
Purg. 95 di u-giunco schietto e che li lavi l viso [Petrocchi: d'un giunco]
Purg. xvii 120 onde s'atrista sì che-contraro ama [Petrocchi: che 'l contrario]
After some hesitation it was decided in all these cases to display the Sanguineti readings as variants, even though strictly speaking they are formal variants rather than variants of substance, because they are such a distinctive feature of the Sanguineti edition and because they are a characteristic way in which he 'saves' the reading of Urb often against the consensus of the other manuscripts.

Especially frequent is the use of the punto in alto to mark the assimilation of the final $-n$ of third person plural forms of the verb. Here are some typical examples (the Petrocchi reading is cited first):

Inf. ix $40 e$ con idre verdissime eran cinte
Sanguineti: e con idre verdissime era- cinte

Inf. xv 74 e non toccbin la pianta
Sanguineti: e non tocchi. la pianta
Inf. xxii 28 sì stavan d'ogne parte i peccatori
Sanguineti: sì stava d'ogne parte i pec[c]atori

Inf. xxix 72 che non potean levar le lor persone Sanguineti: che non potea- levar le lor persone

Purg. x 28 Là sù non eran mossi i piè nostri anco
Sanguineti: Là sù non era- mossi i p[i]è nostri anco

Purg. xi 106 pria che passin mill' anni
Sanguineti: pria che passi. mille anni
Purg. xvii 15 perché dintorno suonin mille tubi
Sanguineti: perché dintorno soni. mille tube

Purg. xxiii 31 Parean l'occhiaie anella sanza gemme
Sanguineti: Parea-l'occhiai[e] anella senza gemme

Par. xxx 64-65 Di tal fiumana uscian faville vive, e d'ogne parte si mettien ne' fiori

Sanguineti: Di tal fiumana uscia faville vive, e d'ogne parte si mettea - nei fiori

An example of the display in these cases is Par. xxx 64:

```
    uscian faville Ash Ham LauSC Mart Rb (uscian fauille), Triv (vscian fauille), PET (uscian faville)
    uscia faville Urb (uscia fauille)
    uscia}\cdot\mathrm{ faville FS (uscia}\cdot\mathrm{ faville)
    vive Ash Ham LauSC Mart Rb Urb (uiue), Triv (viue), FS PET (vive,)
```

There are isolated instances of various other uses of the punto in alto. The display in the collation shown for these cases seemed helpful for the reader attempting
to understand both textual transmission and Sanguineti's editorial practice (the punto in alto is used more than 50 times in his edition). To have eliminated these variants would have blurred one of the more striking distinctions between the Sanguineti and Petrocchi texts. As already mentioned, they clearly reflect Sanguineti's determination to privilege the reading of the Urbinate manuscript at any cost.

Another idiosyncrasy of the Sanguineti edition to which attention should be drawn is the use of ca for che, as at Inf. i 117 and Par. viii 57: ms cba supports both the Petrocchi reading $c b^{\prime} a$ and the Sanguineti reading $c a$.

## Our goal

Our aim in the Collation has been to display as clearly and unambiguously as possible all significant variants and all significant errors in these seven witnesses, in their original and corrected states, as a basis on which to produce an analysis of manuscript interrelationships. In the interests of clarity, where two or more mss. with the same variant reading have very idiosyncratic spellings or a different use of abbreviation signs these readings are occasionally regularised to a hybrid, standard form in the collation. Thus at Par. v 83 the variant on $e$ appears as con, representing Ash con, Ham co(n); at Purg. xiii 100 the variant on vidi un ombra appears as un ombra vidi, representing Mart-c2 un ombra uidi, Triv vn ombra vidi.

In the case of the Sanguineti edition, the markers of editorial interventions in the text - italics and square brackets - have not been preserved in the collation (but are of course retrievable in the Original Spelling display). As noted above, the punto in alto which is such a distinctive feature of the Sanguineti edition has always been preserved.

The creation of the collation presented us with a myriad pressing practical decisions to be made: our choices embody a carefully thought out and thoroughly tested working system. We have made the treatment as consistent
as is humanly possible given the linguistic and metrical complexities of the material with which we were dealing. We hope the results will prove useful and illuminating to scholars and readers of the electronic edition.

## VI. The Phylogenetic Analysis

Peter Robinson and Prue Shaw

## How the analysis is created and how it can be used

In this section we first explain how the phylogenetic analysis is created (steps 1 to 5). We then explain, giving examples, two features of phylogenetic analysis important for textual scholars: the use of unrooted trees, and branch length as a guide to relations between witnesses. In the discussion on branch length, focusing on a single question (the source of the c2 corrections in LauSC) we introduce the VBase tool, and show how this can be used to explore further questions relating to the tradition.

## Step 1: a single XML file

A single XML-encoded file was created which contained the entire record of agreements and disagreements for the whole of the Commedia. This file recorded for every word in every one of the seven original witnesses and the two editions, just how these nine versions of the text agree and disagree according to our collation. It should be noted that this collation excludes spelling and formal variants, as explained in the section V. The Collation. As well as information about the agreements and disagreements among these nine, the collation also recorded precise information about different forms of the text within the seven original witnesses: for example, identifying every substantive variant introduced by Martini in his collation of the Aldine printing, or every alteration made by each of the layers of correction we have identified as present in the Laurenziano di Santa Croce manuscript (LauSC). It thus becomes possible to identify in an instant (for example) what readings introduced by Martini are also found in the Trivulziano manuscript (Triv), readings which support the hypothesis that the very early manuscript Martini used was close to Triv. We believe that this is the first collation in electronic form of any major
work to include this level of detail, of variants within the witnesses as well as between the witnesses.

All information given in the electronic edition about the variants at any one word or phrase is generated from this file: most obviously in the Collation, but also in the variant views given in the VMaps windows, and in the results of all VBase searches. The collation at Inf. i 108 shows how our collation is able to distinguish the agreement between LauSC Triv and Martini's collation in the reading Eurialo e Turno e Niso, corrected by Martini from the Aldine original Eurialo Turno et Niso:

108 Eurialo e Turno e Niso di ferute.

```
Eurialo e Turno e Niso
    LauSC Mart-c2 Triv PET
    Eurialo niso e turno Ash
    Euriano turno et niso Ham-orig
    Eturiano turno et niso Ham-c1
    Eurialo Turno et Niso Mart-orig
    Curialo e turno e nisso Rb
    Eurialo e Niso e Turno Urb FS
di
ferute
Ash Ham LauSC Mart Rb Triv Urb FS PET
Ash Ham LauSC Mart Rb Triv Urb FS PET
```

The XML from which this is generated is as follows:

```
<app id="Reg-IN1-108-1" n="IN1-108" loc="1">
<rdg>Eurialo niso e turno</rdg><wit n="1"><ref from="1" to="4" n="Ash">Ash</ref></wit>
<rdg>Euriano turno <expan>et</expan> niso</rdg><wit n="1"><ref from="1" to="4" n="Ham-orig">Ham-orig</ref></wit>
<rdg>Eturiano turno <expan>et</expan> niso</rdg><wit n="1"><ref from="1" to="4" n="Ham-c1">Ham-c1</ref></wit>
<rdg>Eurialo e Turno e Niso</rdg><wit n="4"><ref from="1" to="5" n="LauSC">LauSC</ref>
    <ref from="1" to="2" n="Mart-c2">Mart-c2</ref>
    <ref from="1" to="5" n="Triv">Triv</ref> <ref from="1" to="5" n="PET">PET</ref></wit>
<rdg>Eurialo Turno <expan>et</expan> Niso</rdg><wit n="1"><ref from="1" to="2" n="Mart-orig">Mart-orig</ref></wit>
<rdg>Curialo e turno e nisso</rdg><wit n="1"><ref from="1" to="5" n="Rb">Rb</ref><</wit>
<rdg>Eurialo e Niso e Turno</rdg><wit n="2"><ref from="1" to="5" n="Urb">Urb</ref>
    <ref from="1" to="5" n="FS">FS</ref></wit>
</app>
```

Note that the witness names are all given within <ref> elements. The "from" and "to" attributes give the numbers of the words in this line of the witness (thus the phrase Eurialo niso e turno occupies words 1 to 4 of this line in Ash):
this information is used to generate the "Original Spelling" views in the Collation. We may note that Petrocchi accepts the LauSC Triv Mart-c2 reading into his edition; evidence that for him, at least, the reading in the manuscript collated by Martini was likely to have been Dante's original.

## Step 2: two standard nexus files

The information in the single XML apparatus file was then translated into two files in the standard NEXUS file format, widely used by evolutionary biologists to hold data concerning agreements and disagreements among populations of objects ("taxa" in evolutionary biology, "witnesses" in textual criticism) at precise points ("characters" to the biologists, "sites of variation" to the textual critics; each variation is a "character state" to a biologist, a "variant reading" to a textual critic). In earlier work with phylogenetic analysis on other texts, we have created just one file for each tradition, representing the agreements and disagreements among the witnesses, but not within the witnesses. However, because differences within the witnesses, in the form of corrections, are so important in the Commedia, we created two files for the analysis of this tradition, with each representing a different combination of readings within the witnesses. The first file includes Martini's collations (labelled "Mart-c2" or "M2" in our terminology) in preference to those of the original Aldine edition; the corrections of the "c1" scribe of Rb ("Rb-c1" or "R1": in fact, the original scribe correcting his own work) in preference to the original readings in that manuscript; and the original readings of LauSC ("LauSC-orig" or "L0") and of all other witnesses: hence, the name "M2R1L0.nex" given to this file. The second file also chooses the Martini collations ("M2") and the corrections by the original hand in Rb ("R1"), but instead of the original readings includes the corrections by the second hand in LauSC ("LauSC-c2" or "L2"): hence, the name "M2R1L2.nex" given to this file. Both files are available on the web at http://www.sd-editions.com/commedia/data/. We also created a third NEXUS file, for which we used the original readings of Mart, actually the Aldine edition. This is the file Mart-orig: hence, the name "M0R1L0.nex" in this same folder.

The fundamental element in a NEXUS file is a data matrix, in which the agreements and disagreements at each place of variation ("character") among the objects surveyed are registered as entries in a series of columns and rows. The example below shows the variants on the phrase "Eurialo e Turno e Niso" in Inf. i 108, in NEXUS file data matrix format, as they are given in the file M2R1L0.nex:

Reg_IN1_108_1 013353636
The label "Reg_IN1_108_1" shows that this line represents the first set of variants at Inf. i 108: the phrase Eurialo e Turno e Niso. Following this label is a series of characters ( 013566 ), each place in the series corresponding to a witness. The first place is for Ash (which has reading " 0 ": "Eurialo niso e turno"), the second for Ham ("1": "Euriano turno et niso"), the third and fourth are for LauSC and Mart-c2 (" 3 ": "Eurialo e Turno e Niso"), the fifth is for Rb (" 5 ": "Curialo e turno e nisso"), the sixth is for Triv, which has the same reading " 3 " as do LauSC and Mart-c2, the seventh is for Urb (" 6 ": "Eurialo e Niso e Turno"), and the last two are for the modern editions of Petrocchi and Sanguineti, with the same readings " 3 " and " 6 " as LauSC/Mart- $c 2 /$ Triv and Urb respectively. Note that no readings " 2 " and " 4 " are recorded: that is because these are the readings of Ham-c1 ("Eturiano turno et niso") and Mart-orig ("Eurialo Turno et Niso"), and in this analysis we are ignoring the c1 reading in Ham in favour of the original reading, and ignoring the original reading in Mart in favour of the c 2 reading.

## Step 3: Phylogenetics and parsimony

Experiment by other projects has established that the program PAUP (Phylogenetic Analysis Using Parsimony, Swofford 1996) is useful for analysis of textual traditions. Generally, PAUP gives good results where it appears that the population of objects surveyed has developed through comparatively straightforward genetic descent, i.e. in situations where most variation has been propagated through vertical inheritance, from parent to child, and where there
has not been large-scale horizontal transmission of variation such as might occur in a heavily contaminated tradition.

PAUP is particularly suited to the purposes of textual critics because of its use of sophisticated methods to find the most "parsimonious" evolutionary hypothesis. Briefly, this method seeks to explain the sharing of characteristics as evidence of common descent, rather than by independent introduction in each object. If reading $A$ is present in two manuscripts, parsimony analysis explains this by supposing there was one change only in a joint ancestor of the two, rather than two distinct changes, one in each manuscript. Hence the term "parsimony": the method looks for the genetic hypothesis which requires the smallest number of changes to explain the distribution of agreements and disagreements in the objects surveyed. In short, it offers the most parsimonious explanation.

We may illustrate how this works with an example, which will also explain the concepts of "parsimony-informative" and "parsimony-uninformative" variants. Consider the readings at Inf. i 20, where Triv and Mart-c2 have the reading ndurata, all others durata:

```
durata Ash Ham LauSC Mart-orig Rb Urb FS PET
    ndurata
    Ash Ham LauSC Mart-orig Rb Urb FS PET
    Mart-c2 Triv
```

There are two possible ways of explaining the presence of the reading ndurata in Triv and Mart-c2, against durata in all other witnesses. Either, the change ndurataldurata occurred twice, and the appearance of ndurata in the two witnesses Triv and Mart-c2, and durata elsewhere, is the result of two separate changes within the tradition. One could represent this in tree form as follows:


Nodes A and B: ndurata (so in Mart-c2 and Triv)
Node C: durata (so in all other witnesses)
This representation suggests that the change ndurata/durata occurs twice: once between nodes A and C , once between nodes B and C .

Alternatively, one could hypothesize that the change ndurata/durata occurred once only, in a common ancestor of Triv and Mart-c2, and the appearance of ndurata in the two witnesses Triv and Mart-c2 is the result of their shared descent from this common ancestor:


Node A: ndurata (so in Mart-c2 and Triv)
Node C: durata (so in all other witnesses)

This representation suggests that the change ndurataldurata occurs just once: between nodes A and C, with ndurata in Mart-c2 the result of their shared
descent from node A. In phylogenetic terms, this second tree is more "parsimonious" than the first tree: it requires only one change of state, not two. We can appreciate that this is exactly the same process of deduction by which a textual scholar might hypothesize that Mart-c2 and Triv share an exclusive common ancestor.

In phylogenetic terms, the variants here are "parsimony-informative". That is: the distribution of variation may be explained in two different ways, one of which is more parsimonious than the other. Many readings are not, however, "parsimony-informative". Obviously, readings where all the witnesses agree (the great majority of the readings in the Commedia) give no information about relationships: in phylogenetic terms, these are "constant characters". Singleton readings are also not "parsimony-informative". Consider Inf. i 3, where Rb has the singleton variant drita, all others diritta. We may express this as follows:


[^86]In this case, there is no more parsimonious representation of the variation. There is one change of state, one witness alone representing this state, and no possible representation which could reduce the number of changes of state necessary to express this variation. In phylogenetic terms this "character" is "parsimony-uninformative".

## Step 4: Processing the files

The two NEXUS files, containing the variants for the whole of the Commedia were then processed multiple times: once for the whole poem; then further times for each cantica; and then for sections within each cantica. The two editions were excluded from the analysis, leaving seven witnesses (Ash Ham Mart-c2 Rb-c1 Triv Urb, and LauSC-orig or LauSC-c2). For any set of seven "taxa" (to use the phylogenetic term) there are 945 possible trees of descent. PAUP identified these 945 possible trees and mapped all the data for agreements and disagreements across these 945 trees to determine which tree or trees gave the most parsimonious explanation of the data: in PAUP terms, "Exhaustive Analysis". ${ }^{151}$ Although in our discussion throughout we focus on the differences among the witnesses, the high degree of agreement among them is notable. Our collation revealed 94779 distinct reading sites (phylogenetic "characters") in the whole text of the Commedia: that is, places (usually a single word, but also phrases of two or more words) at which the text might or might not vary. In 83939 of these, all seven witnesses and both editions agree: over $88 \%$ of the time. This suggests that for at least $88 \%$ of the text of the Commedia in the witnesses we collate, the text is in no doubt. Of the places where there is variation in these witnesses: 7369 are "parsimony-uninformative" and 3471 "parsimony-informative", as explained above.

Where there is considerable ambiguity in the data - as will happen where the tradition is heavily contaminated, or where there is insufficient data to give a clear analysis - parsimony analysis yields several trees that are equally parsimonious. To put this in text critical terms: if there is heavy contamination,

[^87]then one cannot represent the tradition efficiently by a single tree of descent and the more contamination there is, the more trees one might need. Accordingly, if repeated analysis throws up just one tree, one can have some confidence that the data represents a textual tradition where most of the variants have been generated by straightforward "descent with modification", in Darwin's famous phrase. Every run of PAUP over every one of these data sets produced just one tree. Here is the tree for the whole poem for Ash Ham LauSC-c2 Martc2 Rb-c1 Triv Urb (from the file M2R1L2.nex):

Mart2, Rb1, Lausc2, all else orig: whole Commedia


- 1000 changes

That just one tree was generated for each dataset suggested, as explained above, that most of the variants within the tradition have been transmitted by simple descent, from copy to copy. This is a striking and useful conclusion, given that there undoubtedly is some contamination in the tradition, and given the
incidence of polygenetic error (usually called "convergent" error in English) which the textual tradition of the Commedia displays. We discuss below the differences between the trees for different selections of data (different cantiche, different groups of cantos within cantiche, differing combinations of readings within the witnesses, as in the LauSC-orig and LauSC-c2 forms of LauSC).

## Step 5: Trees for Variant Maps

The most parsimonious tree for each cantica - one for Inferno, one for Purgatorio, one for Paradiso - found by PAUP are the trees the reader sees in the "variant map" view. The reader may thus examine the variants at any point and see how the manuscript groupings at each variant correspond (or do not correspond) with the groupings for the whole text of each cantica, as established by the phylogenetic analysis. For example: at Inf. i 13 "al" we can see that Ash and Ham share the variant "a". The variant map shows us that Ash and Ham appear as a pair throughout, and so it is likely that this variant (along with many other variants in Ash Ham) was found in and derives from the shared ancestor of Ash Ham.

## Unrooted phylograms and the "Original Text"

In the discussion above of the variants ndurata/durata at Inf. i 20, and of drita/ diritta at Inf. i 3, we carefully avoided using the terms "original" or "archetypal", or making any statement implying which of the readings ndurata/durata and drita/diritta we might think original to Dante's text, and which the result of scribal error. It is a signal feature of phylogenetic analysis, as we have practised it, that the family representations it hypothesizes are independent of any presumption of originality. That is: in the ndurata/durata example, phylogenetics hypothesizes a shared ancestor for Triv/Mart-c2 against all other witnesses. It does not matter which of ndurata or durata is the "original" or "archetypal" reading: the separation of Triv/Mart-c2 from the other witnesses holds either way. In phylogenetics, we can show trees as "unrooted": that is, with the orientation of the tree giving no presumption of direction of
change. In this case, the tree is the same whether the change is from node A ndurata to node C durata, or the reverse. This ability of phylogenetics to create hypotheses of relationships which do not require any prior judgements as to originality is one of its greatest strengths for textual scholars. In classical stemmatics, as formulated by Paul Maas, analysis must be based on shared error alone. Therefore, one must determine at each point which reading is "original", which is "error", before analysis can begin. As well as the difficulty of determining the "original" reading, there is the argument elegantly expressed by Talbot Donaldson: if one can determine the original reading at every point, then why bother with any further analysis?

Of course, for a textual scholar it matters greatly which reading is the "original". However, the judgement as to which is original, which introduced, can be separated from analysis of relationships. This analysis can then itself be used to determine the likely direction of variation at each point, and hence determine probable originality. For example, scholars have long agreed that Martini derived the readings he introduced into his copy of the Aldine edition from an early Florentine copy, very close to Triv. The agreement of Triv and Mart-c2 here follows that pattern, and so suggests that ndurata is one of many readings introduced by the shared ancestor of Triv and Mart-c2. This suggests that the direction of variation was from node C to node A , and that the original reading here was durata: thus its presence in all the other witnesses. Therefore, one would not root the whole tree at either Triv or Mart-c2, or their shared ancestor. In the diagram above the original is likely to lie somewhere along or close to the spine between the shared ancestor of Triv/Mart-c2 and Ash/Ham.

Within the "variant map" view, the trees are represented as "unrooted phylograms". The "unrooted" view means that the branching appears to occur as an organic growth, from a relatively central point, rather than as a process of uni-directional descent, down from an ancestor, as in traditional representations of a stemma (as for example in Petrocchi's stemma reproduced above at I.

Introduction: An Overview). This may free the reader from an over-simple view of the tradition, presented as a series of vertical straight lines running down from the ancestor signifying cumulative corruption over time. One striking advantage of the "unrooted phylogram" display compared with a traditional geometric representation lies in the correlation between the length of the branches and the degree of divergence from other witnesses.

## Length of branches: the LauSC-c2 corrections; introducing VBase

So far, we have used phylogenetic analysis to create overviews of the relationships within the whole tradition. These are useful, but there are many specific questions relating to aspects of this tradition which require more precise answers than can be given by these overview representations. Particularly, the branch lengths shown in the phylograms suggest relative closeness of witnesses, without being able to express similarity with exact numbers or in terms of particular variants. For this, we provide an additional tool, VBase (for "Variant Database"), accessible from the drop-down menu at the top of the screen.

The "phylogram" view means that branch lengths are (broadly speaking) a measure of difference between witnesses. Compare the different trees for the whole Commedia below. The tree on the left includes the "c2" readings in LauSC (created from the file M2R1L2.nex); that on the right includes the readings first written by the "orig" hand in LauSC (created from the file M2R1L0.nex):

```
Mart, RD1, Lascr, aletse ong uhole Commeas
```

Mart, RDI, Lasco, at else ong uhoie cormeda


There is only one difference between these two trees: the length of the line leading to LauSC. In the tree to the right, which uses the readings of the "orig" hand in LauSC, this line is considerably longer than it is in the tree to the left, which uses the "c2" readings in LauSC. One can measure the length of each line against the scale " 1000 changes" at the base of the phylogram to gain a sense of how many variants separate these two forms of LauSC. The difference between the lengths of the two lines seems slightly more than the length of the scale showing "1000 changes": this suggests that the "c2" and "orig" forms of LauSC differ by somewhat more than a thousand variants. A VBase search confirms this: searching for the variants in LauSC-c2 which are not present in LauSCorig yields 1298 variants. One can see this by selecting "VBase" then filling out the boxes as shown here:

About VBase

+
$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

## Search

1298 variants found. Displaying variants 1 to 50

An interesting question comes to mind, and the answer to it is revealing. The tree suggests to us, and the VBase search tells us, that the "c2" form of LauSC has over a thousand readings which are not present in the "orig" form of LauSC. Yet the line from the node joining LauSC to the other witnesses is shorter for the "c2" form of LauSC than it is for the "orig" form. It could have been the other way about: why is it this way? what does it suggest, that the line from the other witnesses to the "c2" form is shorter than that to the "orig" form?

To explain the striking difference in line length in the phylogram between LauSC-orig and LauSC-c2 is not difficult. The transcription of LauSC-orig contains hundreds of cases (more than six hundred) where the original reading is unrecoverable. These appear in the transcription with the lost letters or words represented within square brackets thus: [....], where the number of dots equals the number of illegible letters. Any human being immediately understands that these unrecoverable readings are of no use in analysing ms. relationships. They are textual blanks. They must simply be discounted. The computer programme, by contrast, treats them as singleton readings found nowhere else in the tradition, since they do not match readings recorded in any other manuscript.

The effect of the inclusion of these readings in the phylogenetic analysis of LauSC-orig is to exaggerate the number of unique readings in LauSC-orig, and hence the distance between LauSC-orig and other witnesses - and thus the length of the line to LauSC-orig in the phylogram. It is very clear that many of the readings in LauSC-orig that are wholly or partially unrecoverable, far from being unique singletons, will in fact have been readings attested elsewhere in
the tradition, just like the LauSC-orig erased readings that are recoverable. (Sometimes one can make an educated guess about what the original reading was, because traces of tails of letters or ascenders remain, but the word is transcribed as unreadable.) Had the textual blanks been omitted from the analysis, the line-length to LauSC-orig would have been much shorter, and unremarkable.

Having said this, it nonetheless remains fascinating to analyse the readings of LauSC, both those scriptio prior readings which are legible, and the LauSC-c2 readings added by the correcting hand. The conclusions are interesting, and very revealing of manuscript relationships. The account below supplements the account given in the Introduction at pp. 119-120.

LauSC-orig has 1298 readings not present in LauSC-c2, of which 889 are singletons. Of these singletons, 609 are "textual blanks" (213 in Inferno, 345 in Purgatorio, 151 in Paradiso): that is, they are cases where the LauSC-c2 scribe has erased the original reading so thoroughly that we cannot determine what was originally written.

Removal of these 609 "textual blanks" from the 889 LauSC-orig singleton readings leaves a total of 280 readings, where we do know the LauSC-orig reading and it is not present in any of the other witnesses transcribed and collated in this edition. Analysis of these readings shows that:

- Of these 280, 62 were minor trivial errors by the original scribe, corrected by the c2 scribe. Typically, these are metrical errors corrected with an underdot, or (more rarely) omissions corrected and (just once or twice) a repeated syllable cancelled.
- 67 readings are found in the other antica vulgata manuscripts collated by Petrocchi, outside the seven included in this edition. It is striking that in many of these 67, the agreement is with Co alone, or with Co and one other manuscript. See I.

Introduction: note 16 for the dating of Co after 1365; Petrocchi classifies this manuscript as part of his $b$ group, together with Ash and Ham.

- This leaves a total of only 151 instances where the LauSC-orig reading is a genuine singleton. Comparison with readings in manuscripts outside Petrocchi's antica vulgata, particularly with Chig (for which Petrocchi demonstrates a strong link with LauSC, accepted by Sanguineti) would no doubt reduce this still further. In point of fact there are more singleton readings in the other Sanguineti mss. than in LauSC-orig; in Mart there are roughly the same number. (The figures can be checked using VBase.) These numbers are reflected in the line lengths in the phylogram, exactly as we would expect. Only the line length of LauSC-orig is anomalous, and that is entirely because of the large number of unreadables.

This analysis may serve as a cautionary tale. If we looked only at the phylogram, we might conclude that the difference between LauSC-c2 and LauSC-orig was the result of the original scribe in LauSC introducing a large number of unique (among these seven witnesses) errors. But firsthand knowledge of the manuscript shows a very different picture. We cannot use computer tools to replace editorial knowledge and judgement; instead, we should use them to indicate where editorial judgement might most usefully be applied.

The next question is: where did these corrections come from? there are two possibilities. First, in theory at least, the readings chosen by the c 2 scribe might have actually been present in the exemplar of LauSC. That is, the scribe was checking the copy against its exemplar, saw that at some 1300 places the original scribe had miscopied the exemplar, and restored the reading of the exemplar at these places. Second, the readings chosen by the c 2 scribe might have come from a quite separate manuscript or manuscripts. Again, we can use VBase to test each hypothesis. If the first: we would expect the same pattern of relationships between these readings and other witnesses as we see for all the other readings in LauSC. Our analysis suggests that the closest links LauSC has throughout is
with the pair Mart/Triv. If the c2 scribe took the corrections from LauSC's own exemplar, we would expect then an affiliation between these corrections and the pair Mart/Triv.

We can use VBase to explore the affiliations of the c2 corrections.

In the account which follows we use some screenshots from the first edition of the digital Commedia, since some VBase functions (Make Full Variant Group Profiles, Make OutlineVariant Group Profiles and Count the Hits in every witness) have not been implemented in the second edition. The argument about manuscript affiliations is not affected.

First, we carry out this search:

## About VBase


$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

Search
169 variants found. Displaying variants 1 to 50

Note that here the box "Count the hits in every witness" is checked. When we press the "Search" button, rather than return a list of the "hits" which satisfy this query, we are presented with a screen which shows for each witness just how many of these "hits" are present in it.

The screenshot below, as it appeared in the first edition of the web site, uses a function "Count the hits in every witness" which is not incorporated into the second edition.

Search for variants: in LauSC-c2 not in LauSC-orig

| Maximum 1298 | hits per witness, discributed as follows: |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Ash: | 765 | Ash-orig: | 6 | Ash-c1: | 10 | Ash-c2: | 4 | Ham: | 742 |  |
| Ham-orig: | 5 | Ham-c1: | 3 | Ham-c2: | 0 | LauSC: | 0 | LauSC-orig: | 0 |  |
| LauSC-c1: | 3 | LauSC-c2: | 1298 | LauSC-c3: | 11 | LauSC-ć: | 0 | Mart: | 605 |  |
| Mart-orig: | 279 | Mart-c2: | 110 | Rb: | 758 | Rb-orig: | 4 | Rb-c1: | 12 |  |
| Rb-c2: | 1 | Triv: | 671 | Triv-orig: | 7 | Triv-c1: | 8 | Triv-c2: | 0 |  |
| Urb: | 800 | Urb-orig: | 0 | Urb-c1: | 1 | Urb-c2: | 2 | PET: | 846 |  |
| FS: | 812 |  |  |  |  |  |  |  |  |  |

The results point away from the possibility that the corrections might have come from the exemplar of LauSC. Elsewhere, LauSC shows a consistent affiliation with the Triv/Mart-c2 pair. But the agreements with the LauSC-c2 readings do not show the same affiliation. The number of agreements with Triv (671) is rather low: indeed, the lowest of any manuscript. Rather, this table shows that the greatest numbers of agreements are as follows:

- 884 agreements with the original, unaltered text of Mart: 605 in text not corrected by Martini, 279 in Mart-orig, that is the readings of the text as originally printed before it was corrected by Martini. This suggests that the source for the c2 corrections in LauSC was a manuscript close to the text printed in 1515 by Aldo Manuzio. This Aldine text itself derives from Biblioteca Apostolica Vaticana manuscript Vaticano latino 3199 (Vat), dated around 1345-50, and classified by Petrocchi as part of his c group (see Mart-orig and Petrocchi's $c$ ).
- 800 agreements with Urb (cf. the 758 with Rb , the other $\beta$ manuscript).

One may account for the first of these, the agreements with Mart, by asserting that the manuscript used by the c2 scribe was derived (like Mart) from Petrocchi's c group. But this does not account for the high number of agreements with Urb. Shaw notes in the I. Introduction: The Position of Rb four cases where the LauSC-c2 reading is identical with that of Urb (with Rb ), and suggests that these point to a link between $\mathrm{Urb} / \mathrm{Rb}(\beta)$ and LauSC-c2. The VBase search below looks for evidence of such a link:

About VBase

$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

## Search

23 variants found. Displaying variants 1 to 50

This search finds twenty-three places, where a distinctive $\mathrm{Rb} /$ Urb reading is found also in LauSC-c2, and is also not present in the original text of Mart. These cannot have come from any exemplar descending directly from Petrocchi's c group.

There are two possible explanations for this. Either the c 2 scribe has taken some readings from a different manuscript again from the $c$ manuscript used as source for most of the LauSC-c2 readings, that is from a manuscript belonging to the $\beta$ branch. Or the manuscript used by the $c 2$ scribe itself contained a mixture of $c$ and $\beta$ readings, and so was itself contaminated.

It follows from this, too, that our decision to use the LauSC-orig readings in all analysis of these witnesses is justified: the LauSC-c2 text, after the addition of these readings drawn apparently from two different branches of the tradition, is a classic contaminated text.

## The LauSC-c1 corrections

The analysis of the LauSC-c2 corrections in the last section disregards the readings in the original hand in LauSC which were changed by the c1 hand, working before the c 2 scribe. For a detailed discussion of the various correcting hands in LauSC, their identification and their inter-relationships, see Manuscript Transcription Notes: LausC. Once more, we can use VBase to explore the changes.

First, VBase tells us that there are 806 places where the c1 scribe substantively alters the text left by the original scribe: that is, alters it to such a degree that the alteration shows as a variant in our collation. Further, of these 806 c1 alterations, only five are altered by the c2 scribe, thus:

Inf. iv 68 (c2 restores dal sonno, changed to dal sono by c1);
Inf. xvi 1 (LauSC-orig donde, LauSC-c1 doue, LauSC-c2 oue);
Purg. vii 38 (c2 restores noi, changed to a noi by c1);
Par. iv 97 (LauSC-orig Poi, LauSC-c1 Poi la, LauSC-c2 e poi);
Par. xxv 138 (LauSC-orig vederla, LauSC-c1 vedere, LauSC-c2 veder).

In another three cases the c2 scribe repeats the c1 reading with a minor alteration (underdotting, or spelling change) which is regularized out in our collation, thus effectively accepting the substantive c1 reading:

Inf. iii 77 (c1 and c2 both have fermerem after regularization, in place of LauSCorig fermeremo);

Purg. xxiv 10 ( c 1 and c2 both have sai dov after regularization, in place of LauSCorig il sai doue);

Par. xxv 138 (c1 and c2 both have benche io after regularization, in place of LauSC-orig benche).

Given the large number of c1 and c2 corrections in LauSC, it may seem surprising that there are so few instances where the c 2 scribe either alters a c1 reading, or seems to explicitly accept the substantive c1 reading. Indeed, there is evidence that the two scribes had rather different agendas. We note above that the c 1 scribe substantively alters the original reading 806 times. In a remarkable 1875 times (over twice as many occasions) the c1 scribe makes a change which, in our collation, does not alter the text.


Thus, in the second line of the first canto of Inferno our collation shows both LauSC-orig and LauSC-c1 as reading selva oscura. In fact, LauSC-orig has selua oscura; the c1 scribe underdots the "a" of selua to make the elision explicit. As the two phrases selua oscura and selu oscura are metrically equivalent, both are regularized to the base form selva oscura. In case after case, the c1 scribe underdots, or alters the spelling, in a manner which has no effect on sense or metre. It appears the scribe is aiming for a hypercorrect presentation of minutiae, and is less concerned with what might be seen by others as gross errors requiring correction.

We may compare the practice of the c 1 corrector with that of the c 2 corrector. As we noted above, there are 1875 places where the c1 corrector makes a change which does not substantively alter the text, compared to 806 places where the c1 correction does affect the text. In comparison, there are only 169 places where the c2 correction does not substantively affect the original text (and a further three, noted above, where it does not substantively affect c1):

# About VBase <br> Collation <br> OIn / O Not in (<<=> 3) LauSC-c2 LauSC-orig $\dagger$ 

$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

## Search

169 variants found. Displaying variants 1 to 50

We can compare these 169 with the 689 places where the 22 scribe's change has a substantive effect on the text. This number, 689, represents the 1298 differences between the c2 and original texts, less the 609 readings identified as "textual blanks", because the original reading is unreadable and no conclusion can be drawn about the relationship of original and corrected readings (see Length of Branches and the L2 Corrections above). Putting these figures together, we discover:

- The c 1 scribe makes a total of 2681 changes in the text. Of these, 806 ( $30 \%$ ) have a substantive effect on the text; 1875 (70\%) do not;
- The c2 scribe makes a total of 858 changes in the text. Of these, $689(80 \%)$ have a substantive effect on the text; 169 (20\%) do not.

This discrepancy shows that the two scribes had rather different aims in mind. Thus $80 \%$ of the readings altered by the c2 scribe are altered substantively; $20 \%$ are not altered substantively. These figures are almost exactly reversed for the c 1 scribe: only $30 \%$ of the changes made by this scribe have a substantive effect on on the text; $70 \%$ have no substantive effect on the text. From this, it is clear that the c1 scribe was not comparing the text methodically with another exemplar, but rather rewriting or adjusting the text at many places to clarify metre, or to amend the orthography. One has to be cautious here. As IV. Ms. TRANSCRIPTION Notes: LauSC explains, it is not always easy to distinguish the two layers of correction we call " c 1 " and " c 2 " in this manuscript. Our general practice was to label as "c1" changes those which did not affect the text (mostly underdots), and as "c2" those where there was a clear intention of altering the text, deducible from erasure and scraping away the original. Thus, there may be
some cases (but not many) where a change we have assigned to the "c1" scribe was actually carried out by the "c2" scribe. In general, however, we are able to distinguish the two scribes, and the palaeographic evidence of two different hands is matched by strong evidence of two very different scribal behaviours. ${ }^{152}$

## LO: The scriptio prior of LauSC

The effect of the introduction of the L1 and L2 variants is, of course, to create a contaminated text - and we have just seen that the source of the L2 corrections may itself have been contaminated. We can also demonstrate using VBase that the scriptio prior of LauSC was contaminated, perhaps even more so than Petrocchi believed. VBase searches allow us to establish that the original version of Villani's text draws heavily on both Petrocchi's $a$ and $c$ branches, and indeed is split almost evenly between them. A search for variants in LauSC and Martorig and no other witness gives 72 variants; a search for variants in LauSC-orig and Mart-orig and no other witness gives 23 variants; thus we have a total of 95 variants found only in these two witnesses among the Sanguineti seven. A search for variants in LauSC and Triv+Mart-c2 and no other witness gives 50 variants, while a search for variants in LauSC-orig and Triv+Mart-c2 and no other witness gives 55 variants, making a total of 105 variants found only in these three witnesses among the seven we are examining. The total figures ( 95 and 105) are so close that they suggest that Villani's original text drew equally on both these textual traditions, that is on Petrocchi's $c$ and $a$ families respectively.

[^88]We can note too that LauSC-orig shares a series of readings with Urb and no other manuscript. A search for variants in LauSC and Urb and no other of the seven witnesses gives 42 variants; a search for variants in LauSC-orig and Urb and no other of the seven gives 11 variants; thus we have a total of fifty-three variants found only in these two witnesses among the Sanguineti seven. This figure is lower than the figures for M0 (95) and M2T (105), but still significant. And we saw earlier that some of the readings which are singletons in LauSC in terms of the Sanguineti seven manuscripts are shared with Co. Thus we find in the scriptio prior of the Laurenziano di Santa Croce manuscript a confluence of readings from four of Petrocchi's five sub-subarchetypes ( $a, b, c$ and $e$ ). It seems reasonable to conclude that those scholars who regard LauSC as inaffidabile because it is an editio variorum are quite right: see I. INTRODUCTION: note 31. While it is true that the large number of unreadable variants in the scriptio prior makes it impossible to assert this categorically, nonetheless this finding based on the readings which remain legible is as close to the truth as we are likely to get.

## Mart-orig and Petrocchi's c

We observed above that many of the c2 corrections in LauSC appeared to be drawn from a manuscript close to the text printed in 1515 by Aldo Manuzio, itself derived from Biblioteca Apostolica Vaticana manuscript Vaticano latino 3199 (Vat). This affinity is with the original text of the Aldine edition, disregarding Martini's corrections: that is, Mart-orig (M0), not Mart-c2 (M2).

The link with Vat is significant, as Petrocchi assigns this manuscript to his $c$ group:


Because we had transcribed both the Mart-orig and Mart-c2 forms of the text within the Aldine edition, we could generate a NEXUS file recording the agreements and disagreements of M0 (not M2) with the other witnesses. This is the file M0R1L0.nex, available in the folder "data" on the web at http://www.sd-editions.com/commedia/data/. From this file, we created a separate phylogenetic analysis for the text as it was in Mart before Martini's corrections. On the left below is the unrooted phylogram given by PAUP for the whole Commedia using M0, the original text of the Aldine edition; on the right is the unrooted phylogram using M2, the text as changed by Martini:


In the tree to the right, Mart (=M2) forms a pair with Triv, confirming the long-held view that Martini used an early Florentine manuscript very close to Triv as the source of his corrections. But the tree to the left places Mart (=M0) quite apart from Triv. Triv appears to form a pair with its collaterale LauSC, while Mart ( $=\mathrm{M} 0$ ) is on a branch of its own, coming from the spine between the Urb/Rb and Ash/Ham pairs. This agrees with Petrocchi's assignment of Vat, the ancestor of Mart-orig, to a distinct branch of the tradition which he labelled c. Thus, the Aldine text ( $=\mathrm{M} 0$; $=$ Vat $<$ Petrocchi's $c$ ) stands apart from the other three pairs, each representing a separate branch of the tradition according to Petrocchi: LauSC/Triv (Petrocchi's a), Ash/Ham (Petrocchi's b) and Urb/Rb (Petrocchi's $\beta$ ). The clarity with which Mart-orig in our phylogenetic analysis aligns with the position of Vat in Petrocchi's stemma confirms Petrocchi's analysis (and, conversely, validates the computer methodology which gives results exactly matching those of traditional scholarly methods where those results are undisputed). It also confirms the soundness of our decision to distinguish the "orig" and "c2" layers in Mart in our transcription, and of the
methodology we used to implement this. It is this methodology which makes these sophisticated computer analyses possible.

## Questions about the Commedia tradition

In this section we use the computer-based tools at our disposal to address particular issues in the Commedia tradition. We have two purposes in mind. The first is to cast light on the tradition. The second is to illustrate the use of the tools: that is, interpretation of the trees given by phylogenetic analysis, and use of VBase to develop and test more precise hypotheses regarding the tradition. We invite readers to use the same tools, to test our conclusions and to seek their own.

The coherence of the tradition: was the Commedia "published" in sections?

The Commedia is a long text, written over a period of many years by a famous author whose work was already the subject of intense interest. This, and the highly-structured nature of the text with its clear divisions into three cantiche, further subdivided into one hundred canti, make it very likely that the text was released to the public in sections, as readers sought access to a masterpiece in the making.

Many scholars have suggested that the Commedia was originally put into circulation in parts. I. INTRODUCTION: note 12 outlines some of these hypotheses, ranging from discrete release of small groups of canti to release of whole cantiche.

We are able to run phylogenetic analysis on sections of the text, corresponding to putative part-published sections. If the part-publication hypothesis is correct, one might see shifts in affiliation among the witnesses corresponding to the different distribution segments. The most obvious candidates for partpublication are the three cantiche. Here are the trees for each of the three cantiche
(using here, as henceforth, the LauSC-orig forms in preference to the LauSCc2 forms).


The near-absolute identity of the trees for Inferno and Purgatorio is astonishing. Indeed, in nearly two decades of work with phylogenetics and stemmatics, including looking at thousands of trees, this is perhaps the most remarkable single result I (PR) have seen. For the two trees to come out so near each other - with only relative differences in branch lengths distinguishing them - the underlying relationships among the witnesses across the two cantiche must be identical. This suggests that in the earliest stages of the history of the Commedia tradition, both cantiche, Inferno and Purgatorio, were distributed together, as a single continuous text, and then copied together in a series of complete copies. One has to be careful here. In the very similar case of the Canterbury Tales, where the circumstances of composition appear to make part-publication highly likely and where scholars have long claimed to detect traces of part-publication in the manuscript tradition, phylogenetic analysis of sections of the Tales has also failed (though less unequivocally than in this case) to provide evidence of part-publication. However, one could not assert that part-publication of either
of these cantiche of the Commedia or of any section of the Tales did not happen at all. Simply, the phylogenetic analysis suggests no evidence for it.

On the face of it, the slightly different tree for Paradiso suggests that this cantica might have been published separately from the other two cantiche. Closer analysis, however, suggests a more complicated situation. In order to test hypotheses of part-publication of groups of canti, we carried out analysis on groups suggested by scholars as likely to have been published separately (see the studies cited in I. INTRODUCTION: note 12). Below are the trees for seven groups of canti from these two cantiche:


We see that for six of these seven trees, we have near-identical trees to those we have for the two cantiche. However, the seventh tree, that for the first seven canti of Inferno, does differ. The manuscript Rb , which everywhere else in these cantiche forms a pair with Urb, here appears linked with Ash.

We may now look again at the tree for the third cantica, Paradiso:


As for the first canti of Inferno, the difference between this and the tree for the other cantiche focuses on one manuscript, Rb. In both Paradiso and in the first seven canti of Inferno, Rb moves from the place it occupies in the other canti of Inferno and throughout Purgatorio. The trees for groups of canti within Paradiso show the same movement of Rb , away from descent from the same node as Urb:


Looking closely at the trees for different sets of canti within the cantiche, one notices a symmetry. In both the trees for the first seven canti of Inferno and for the last thirteen of Paradiso, we see that Rb has moved (apparently) right away from Urb. In all the other groups of canti, Rb appears either descended from the same node as Urb, or from a node very near it. But in the trees for these two groups of canti, one from the very beginning of the poem, one from the very end, Rb has moved to share an ancestor with Ash:


This raises a question, about the possible separate part-publication of Paradiso. If this cantica was published separately, how can it be that we find the same relationships in the first seven canti of Inferno that we find in the last thirteen of Paradiso? Further, we see that all the differences among the trees both for the full cantiche and for the groups of canti, centre on just one manuscript, Rb . In all the trees, we see the same pairings Ash/Ham, Mart/Triv; we see that LauSC appears linked to a node near Mart/Triv; we see that Urb (with or without Rb ) appears separate from the other witnesses. But Rb alone is not stable in its relation to all other witnesses: appearing close to Ash/Ham in Inferno 1-7 and Paradiso 21-33, appearing close to Urb everywhere else, either descending from the same node (Inferno 8-34 and all Purgatorio) or from a node very close to Urb (Paradiso 1-20).

## The affiliations of Rb

In the last section, we looked only at the trees generated by phylogenetic analysis. This analysis has directed our attention to just one witness, Rb. Exactly what is happening between Rb and other witnesses? to answer this question, we may use the same VBase tools we introduced earlier, in discussing the origin of the c2 corrections in LauSC. For this edition, the affiliations of $R b$ are particularly important. The position of Rb is the central question at issue between this project and Sanguineti's edition. Sanguineti builds his entire argument on the unique status of Urb, as the sole representative of his $\beta$ tradition, with all other manuscripts belonging to the $\alpha$ family. But if Rb is also a $\beta$ witness, then Urb loses its unique status and, in the words of the editor of this publication, tutto crolla.

We may frame a series of questions regarding Rb which we can then use VBase to test. Particularly, what readings does Rb have which link it with Ash/Ham in some places, and with Urb in others? What does the distribution of these
readings tell us about Rb ? We may also ask the same questions of LauSC: beside Rb , the one witness of the seven which does not clearly belong to a pair.

To answer these questions we now turn to VBase (accessible from the menu bar at the top of the screen). VBase allows us to construct searches for sets of variants shared by possible witness families. To put this another way: these witness families are characterized by the variants the witnesses inherit from a single joint ancestor they share below the archetype and which introduced these variants into the tradition. We are particularly interested in four possible witness families:

- Urb (with Rb): the variants characteristic of the $\beta$ family. According to Sanguineti, Urb is the sole representative of $\beta$, with all other manuscripts belonging to the $\alpha$ family. If Sanguineti is right, the single manuscript Urb is equal in authority to all the other manuscripts of the Commedia put together. But our phylogenetic analysis suggests that Rb and Urb share an exclusive ancestor, and so Rb too is a member of the $\beta$ family. Our search for this is as follows:


Search
308 variants found. Displaying variants 1 to 50

This search is very simple. The first line declares: we are looking for variants present in both Urb/Rb. The second line declares: we are only interested in variants in fewer than five witnesses (that is, in two, three or four witnesses). The reason for this restriction is that it is possible that variants present in both Urb and Rb could be present in some other witnesses. For example, they could be in both the modern editions: there are several readings where both Petrocchi
and Sanguineti agree that the $\beta$ line of descent preserves an ancestral variant lost elsewhere in the tradition. Or one or two other witnesses might have $\mathrm{Urb} / \mathrm{Rb}$ readings by simple coincidence, or perhaps by contamination. However, readings in more than two other witnesses might be ancestral to the whole tradition, and hence inherited by all witnesses not just Urb and Rb, and thus the condition of " $<5$ of \all". Taken together, the two statements mean: find all variants present in Urb and Rb and in fewer than five witnesses. This search returns 308 variants: around three for every canto, or one every 45 lines.

- Ash/Ham: the variants characteristic of the Ash/Ham pair, and so likely to have been introduced by a joint ancestor of this pair (both of which were written in western Tuscany). Our search for this is as follows:


This search is somewhat more complex. It is possible that the pair Ash/Ham is a member of a larger family, $\alpha$, which also contains the pair Mart/Triv. Hence, we are interested here only in the variants introduced by the immediate ancestor of Ash and Ham, not in the $\alpha$ ancestor it might share with Mart and Triv: see below for the search for $\alpha$. Thus, the second line specifies that we do not want to see variants present in Mart/Triv, and the third line again restricts results to variants in fewer than five witnesses, to eliminate readings likely to have been ancestral to the whole tradition. This search returns 770 variants: around eight for every canto, or one every 17 lines.

- Mart/Triv: the variants characteristic of the Mart/Triv pair, and so likely to have been introduced by a joint ancestor of this pair. Our search for this is as follows:


Taken together, the first two lines request variants present in both Triv and Mart, with the refinement that in Mart we are looking for Martini's corrections (Mart-c2) in preference to the original Aldine text (Mart-orig): thus both Mart and Mart-c2 (but not Mart-orig). We are interested here only in the variants introduced by the immediate ancestor of Mart and Triv, not in the $\alpha$ ancestor it might share with Ash and Ham: see the next search for $\alpha$. Thus, the third line specifies that we do not want to see variants present in Ash/Ham, and the fourth line again restricts results to variants in fewer than five witnesses, to eliminate readings likely to have been ancestral to the whole tradition. This search returns 874 variants: around nine for every canto, or one every 15 lines.

- $\quad \alpha$ : the variants characteristic of the $\alpha$ family. Sanguineti and Petrocchi agree on the existence of this, far the largest single family of manuscripts of the Commedia, including both the Ash/Ham and Mart/Triv pairs. Our search for this is as follows:

About VBase

$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

## Search

327 variants found. Displaying variants 1 to 50

Taken together, the first two lines request variants present in all four of Ash Ham Triv and Mart, with the difference that in Mart we are also looking for Martini's corrections (Mart-c2), derived from the lost early exemplar used by Martini. Because this group has at least four witnesses, then we accept that variants might be present (by contamination or coincidence) in up to two other witnesses, or six in total: hence the third line. This search returns 327 variants. As we discuss below, it may be significant that the number of variants returned by this search is very close to the number returned by the $\beta$ search.

We have created searches which will find, as nearly as we can, the variants introduced into the tradition in the ancestors of both the $\alpha$ and $\beta$ families, and in the ancestors of the Ash/Ham and Mart/Triv pairs within $\alpha$. The trees surveyed above suggest that while Rb is mostly linked to Urb, and is thus a member of the $\beta$ family, in some parts of the Commedia it is allied to Ash/Ham, and hence to $\alpha$. We can now use the searches we have created for those groups to try and locate Rb within the whole tradition.

VBase provides a powerful tool, "Variant Group Profiles", to show how individual witnesses align themselves with witness groupings. (As already mentioned, this function has not been installed in this second edition of the digital Commedia. The screenshots which follow are taken from the first edition. The instructions below can be followed by going to the first edition of the digital Commedia at

## http://www.sd-editions.com/AnaAdditional/commediaonline/home.html.)

For each witness, its variant group profile counts how many readings it shares with each variant group. To see how this works, click on the link "Make Outline Variant Group Profiles":

## $11 \square$ Press to search SEARCH <br> Make Outline Variant Group Profiles <br> Urb/Rb Martini's collation Editions

(this link is just under the Press to search SEARCH button in the VBase search screen). The system will open a new window, and fill it with outline variant group profiles for every witness. The entry for LauSC shows how we can use this information:

LauSC: Variant Group Profile - 90645 readings

|  | Ash/Ham Mart/Triv Alpha Urb/Rb |  |  |  | Martini's collation$\qquad$ |  | $\begin{aligned} & \text { ET } \\ & \text { sag } \end{aligned}$ | $\begin{gathered} \text { FS/Urb } \\ \text { not } \\ \text { PET } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 51 | 142 | 162 | 11 | 986 | 20 | 879 | 217 |

The top line tells us that LauSC contains a total of 90645 readings (note that this figure excludes all readings ascribed to L1, L2, L3 and L4 hands, and to L0 where it is corrected by any of L1 to L4: the figures for all these are accessible as distinct Variant Group Profiles). The next line lists all the variant groups identified by VBase, the first four corresponding to the four groups discussed above. Below, we have the number of variants in each group: 770 for Ash/Ham, 874 for Mart/Triv, 327 for $\alpha, 308$ for Urb/Rb. Then, we have the number from each group actually present in LauSC: 51 of the 770 Ash/Ham variants, 142 of the $874 \mathrm{Mart} /$ Triv variants, 162 of the $327 \alpha$ variants, just 11 of the $308 \mathrm{Urb} / \mathrm{Rb}$ variants.

We can use these figures to locate LauSC within the tradition. Clearly, LauSC is not aligned to the $\beta$ family: 11 out of 308 can be no more than chance
agreements. Equally clearly, it aligns with $\alpha$ ( 162 of 327 variants; 181 if we include a further 19 from LauSC-orig). Within $\alpha$ it aligns with Mart/Triv (142 of 874) rather than with Ash/Ham (51 of 770). In fact, the alignment with Mart/Triv is stronger if we look at the LauSC-orig readings: that is, the readings in LauSC written by the original hand, but replaced by one of the other correcting hands. There are a further 81 Mart/Triv variants in LauSC-orig: adding these to the LauSC readings increases the number of Mart/Triv variants in the text first copied by the original scribe of LauSC to 223 of the 874:

| LauSC-orig: Variant Group Profile - 4140 readings |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ash/Ham Mart/Triv Alpha Urb/Rb |  |  |  |  | Martini's <br> Editions PET FS disagree |  |  | FS/Urb, not PET |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 25 | 81 | 19 | 11 | 236 | 2 | 141 | 71 |

Taken together, these tell us that LauSC is, as Sanguineti came to accept (in an article published several years after his edition, where he modified his original view), collaterale with Mart/Triv: that is, descended from the same ancestor below the archetype as Mart/Triv, but not sharing the same immediate ancestor as Mart/Triv. This is exactly as the phylogenetic trees unanimously give it:


We now turn to Rb . Here is the outline variant group profile for Rb :

Rb: Variant Group Profile - 93257 readings

|  | Ash/Ham Mart/Triv Alpha Urb/Rb |  |  |  | Martini's collation $\qquad$ |  |  | FS/Urb, not PET |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 99 | 73 | 96 | 308 | 1237 | 19 | 821 | 480 |

The problem is, as we have observed above, that on the one hand Rb seems a clear member of the $\beta$ group, alongside Urb: thus the 308 variants it has from the $\mathrm{Urb} / \mathrm{Rb}$ group. On the other hand, Rb has rather more variants from the $\alpha$ side of the tradition than one would expect if it were regularly descended from the same $\beta$ ancestor as Urb: 99 of the 770 Ash/Ham variants, 73 of the 874 Mart/Triv variants; 96 of the $327 \alpha$ variants. One may compare the outline profile for Urb:

Urb: Variant Group Profile - 94582 readings

|  | Ash/Ham Mart/Triv Alpha Urb/Rb |  |  |  | Martini's collation$\qquad$ |  | $\begin{aligned} & \text { ET } \\ & \text { sag } \end{aligned}$ | FS/Urb, not PET |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 42 | 21 | 9 | 308 | 1225 | 97 | 36 | 1406 |

These figures for variants from each of these groups for Urb are much lower than those for Rb : so low, indeed, that they could be the result of simple chance. But in itself, this suggests that some other factor than chance must be at work in Rb , to lead to so much higher a proportion of these readings in Rb than in Urb.

How, then, do we account for these readings in Rb ? For Sanguineti the answer is quite simple: Rb has these readings because it is descended from the $\alpha$ exemplar, not from the $\beta$ exemplar. This allows him to affirm the unique status of Urb as the sole representative of the $\beta$ line of descent, and thus equivalent in authority to all the other manuscripts put together. But this solution does not appear possible. First, the number of $\alpha$ variants present in Rb is not sufficient to support the hypothesis that it is a member of the $\alpha$ group. If it is a descendant of $\alpha$, why does it have only a quarter of the $\alpha$ variants? One should expect that
a descendant of $\alpha$ would not have all the 327 readings we suggest might have been introduced in $\alpha$ : but to lose three-quarters of them is more than carelessness. Second: Sanguineti then has exactly the same problem with Rb and the $\beta$ tradition as we have with Rb and the $\alpha$ tradition. He has to account for the $308 \mathrm{Urb} / \mathrm{Rb}$ variants in Rb : a rather more difficult task than we have, to account for the $96 \alpha$ variants in Rb .

How can we explain the variants from the $\alpha$ branch of the tradition in Rb ? It could be contamination. VBase allows us to test for this. Elsewhere, one of us (PR) has suggested that one can use variant group profiles to distinguish instances of descent from contamination by the proportions of readings from variant groups present in any one witness, as follows: ${ }^{153}$

- If a witness has more than half of the variants from a variant group, it is likely to be a member of that group. That is, it is descended from the same ancestor below the archetype as the core members of the group, introducing the readings characteristic of that group. The $308 \mathrm{Urb} / \mathrm{Rb}$ variants, all of them present in Rb , seem too many to be explained by contamination.
- If a witness has between a third and a quarter of the variants in a variant group, then it is likely to have these variants by contamination. Rb has 96 of the $327 \alpha$ variants, and this number would be consistent with contamination.
- The hypothesis of contamination suggests that the scribe has two exemplars available. The scribe chooses one as the base, but at times replaces the readings of this base exemplar with readings drawn from the other. In this scenario, it is likely that the proportion of readings between the two exemplars may shift over copying, with a much higher number of readings from the second exemplar in some areas (and even outright shift of exemplar). Something like this seems to happen at both the beginning and end of

[^89]the Commedia in Rb . We can see this by looking at the full variant group profile for Rb . To access this, click on the link "Make Full Variant Group Profiles" at the bottom right of the VBase screen:

## Make Full Variant Group Profiles

FS/Urb, not PET

The full variant profiles for each manuscript will appear in the window. These present the same basic information as the outline variant group profile, shown above. However, in addition, the full profile also shows the distribution of the variants from each group across the different parts of the text. The full profile for Rb is as follows:

Rb: Variant Group Profile - 93257 readings

|  | Ash/Ham Mart/Triv Alpha Urb/Rb | Martini's <br> collation |  |  |  | Pditions | PET FS <br> disagree | FS/Urb, <br> not <br> PET |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 99 | 73 | 96 | 308 | 1237 | 19 | 821 | 480 |
| Inferno | $28 / 146$ | $21 / 260$ | $41 / 138$ | $114 / 114$ | $354 / 774$ | $5 / 60$ | $331 / 606$ | $167 / 561$ |
| Purgatorio | $28 / 435$ | $42 / 341$ | $21 / 121$ | $139 / 139$ | $434 / 862$ | $8 / 46$ | $234 / 524$ | $193 / 480$ |
| Paradiso | $43 / 189$ | $10 / 273$ | $34 / 68$ | $55 / 55$ | $449 / 823$ | $6 / 36$ | $256 / 414$ | $120 / 365$ |
| Inferno 1-7 | $6 / 24$ | $3 / 56$ | $16 / 40$ | $27 / 27$ | $63 / 160$ | $2 / 17$ | $86 / 157$ | $42 / 146$ |
| Inferno 8-end | $22 / 122$ | $18 / 204$ | $25 / 98$ | $87 / 87$ | $291 / 614$ | $3 / 43$ | $245 / 449$ | $125 / 415$ |
| Paradiso 1-20 | $29 / 163$ | $7 / 211$ | $21 / 44$ | $37 / 37$ | $217 / 489$ | $2 / 20$ | $165 / 267$ | $80 / 241$ |
| Paradiso 21-end | $14 / 26$ | $3 / 62$ | $13 / 24$ | $18 / 18$ | $232 / 334$ | $4 / 16$ | $91 / 147$ | $40 / 124$ |

The key lines here are those for the segments Inf. 1-7 and Par. 21-end. In both these, the proportion of $\alpha$ and Ash/Ham readings present in Rb is considerably higher than elsewhere. Thus, in Par. 21-end, Rb has more than half the Ash/Ham and $\alpha$ readings, compared to the usual proportions of one-in-seven and one-in-three (see the top two lines of the profile: there are a total of 770 Ash/Ham readings, of which Rb has $99 ; 327 \alpha$ readings, of which Rb has 96).

This suggests that the mixture of $\alpha$ and $\beta$ readings in Rb may be explained by the manuscript being descended from the same $\beta$ exemplar as Urb, but with readings drawn ("contaminatio") from the $\alpha$ line: essentially, Petrocchi's view.

The consistent distribution and the nature of the 308 readings identified by the VBase Urb/Rb variant search, many of which are discussed in detail by Shaw in I. InTRODUCTION: The Position of Rb , make it certain, in our view, that these readings were introduced by an ancestor (Petrocchi's $\beta$ ) below the archetype and inherited by descent by both Urb and Rb , thus destroying the fundamental premise of Sanguineti's edition.

However, we admit that other aspects of this hypothesis remain unclear to us. We noted the presence of a number of Ash/Ham variants in Rb , particularly at the beginning and end of the Commedia. This is matched by the presence of a number of Urb/Rb variants in the pair Ash/Ham. One can see this in the full profile for Ash:

Ash: Variant Group Profile - 94096 readings

|  | Ash/Ham Mart/Triv |  | Alpha | Urb/Rb | Martini's collation Editions |  | PET FS disagree | FS/Urb, not PET |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Totals: | 770 | 874 | 327 | 308 | 2459 | 142 | 1544 | 1406 |
| This witness: | 770 | 0 | 327 | 40 | 1174 | 8 | 952 | 345 |
| Inferno | 146/146 | 0/260 | 138/138 | 11/114 | 381/774 | 5/60 | 389/606 | 122/561 |
| Purgatorio | 435/435 | 0/341 | 121/121 | 15/139 | 363/862 | 2/46 | 307/524 | 119/480 |
| Paradiso | 189/189 | 0/273 | 68/68 | 14/55 | 430/823 | 1/36 | 256/414 | 104/365 |
| Inferno 1-7 | 24/24 | 0/56 | 40/40 | 5/27 | 75/160 | 1/17 | 98/157 | 29/146 |
| Inferno 8-end | 122/122 | 0/204 | 98/98 | 6/87 | 306/614 | 4/43 | 291/449 | 93/415 |
| Paradiso 1-20 | 163/163 | 0/211 | 44/44 | 9/37 | 219/489 | 0/20 | 173/267 | 61/241 |
| Paradiso 21-end | 26/26 | 0/62 | 24/24 | 5/18 | 211/334 | 1/16 | 83/147 | 43/124 |

The number of $\mathrm{Urb} / \mathrm{Rb}$ variants ( 40 of 308 ; compare 46 of 308 for Ham ) found in Ash seems slightly higher than can be accounted for by accident. One may compare the variant group profiles for Mart and Triv not shown here, but accessible by looking at the variant group profiles for those two manuscripts: the four Urb/Rb variants in Mart, and the nine in Triv, are easily explained by chance. But this explanation is less easy for the higher numbers in Ash/Ham. Further, we note that the proportion of $\mathrm{Rb} / \mathrm{Urb}$ readings in Ash/Ham rises at the same points where we find higher numbers of Ash/Ham readings in Rb , particularly in the last thirteen canti of Paradiso (where Ash has five of the
eighteen $\mathrm{Rb} / \mathrm{Urb}$ readings, as shown in this screen shot, and Rb has fourteen of the twenty-six Ash/Ham readings).

## In Search of $\alpha$

It seems possible that the two phenomena described in the last section - the presence of Ash/Ham readings in Rb and of $\mathrm{Rb} / \mathrm{Urb}$ readings in Ash/Ham - are related. Petrocchi suggests that besides Urb and Rb, a further manuscript, Mad, is descended from $\beta$. We could expect that light will be cast on the exact nature of $\beta$, and the relationship of the trio Urb Rb and Mad to each other, to Ash/Ham, and to $\beta$, by study of Mad. We recall that Rb contains a much higher number of $\alpha$ readings than Urb, while Ash/Ham descend from a putative $\alpha$ exemplar. Both Sanguineti and Petrocchi agree that the vast majority of manuscripts descend from this $\alpha$ exemplar. Petrocchi's stemma shows three subgroups as descending from $\alpha$, designated $a, b$ and $c$. His $a$ contains only Mart and Triv; $b$ contains Ash and Ham, but also Co and Gv; $c$ is his largest group, with (among others) Parm, Pr, Vat and Chig. No witnesses from this group are included directly in this edition, though our analysis of the original Aldine text, descended from Vat (see Mart-orig and Petrocchi's c), confirms Petrocchi's designation of $c$ as distinct from $a$ and $b$. The exact status of $\alpha$, and its relation to $\beta$, is critical to the Commedia tradition. There are three possibilities:

- The archetype of the whole tradition is separate from both $\alpha$ and $\beta$, as Petrocchi's stemma argues. That is: $\alpha$ and $\beta$ are distinct scribal copies, each introducing readings not present in the archetype and which are then inherited by their descendants (here: Ash/Ham/Mart/Triv/LauSC for $\alpha$; Urb/Rb for $\beta$ ).
- $\quad \beta$ is the archetype of the whole tradition. This would mean that the readings we think introduced by the exclusive ancestor of $\mathrm{Rb} / \mathrm{Urb}$ (" $\beta$ ") are actually the readings of the ancestor of the whole tradition. We would then explain the absence of these readings from the rest of the tradition by the descent of all other manuscripts from an ancestor which removed all these readings, and replaced them by others: this would be $\alpha$.
- $\quad \alpha$ is the archetype of the whole tradition. This is the mirror of the last: the readings we think introduced by the exclusive ancestor of Ash/Ham/Mart/Triv/LauSC (" $\alpha$ ") are actually the readings of the ancestor of the whole tradition, and there is no distinct $\alpha$ exemplar within the tradition. We would then explain the absence of these readings from the rest of the tradition (here, just $\mathrm{Rb} / \mathrm{Urb}$ ) by the descent of all other manuscripts from an ancestor which removed all these readings, and replaced them by others: this would be $\beta$.

Which of these seems most likely? Firstly, it appears that the second option (that $\beta$ is the archetype of the whole tradition) is not possible. Our analysis agrees with Petrocchi, that Urb and Rb share readings suggesting shared descent from an ancestor below the archetype, and so disagrees with both Sanguineti (who thinks Urb uniquely descended from the archetype) and Trovato (who suggests that the archetype is located at $\beta$ ).

This leaves the other two hypotheses. At first glance, it would appear that the 327 variants returned by our search for $\alpha$ variants provides solid support for the existence of an ancestor below the archetype which introduced these 327 readings, and hence their presence characteristically in the putative descendants of $\alpha$ and their absence elsewhere. But a closer look gives us pause. First, the number 327 is close to the number 308 returned by our search for Rb/Urb variants. Suspiciously close, indeed: it could be that what our search is doing is just finding variants not present in $\mathrm{Rb} / \mathrm{Urb}$ and shared by the rest of the tradition, not finding variants actually introduced by a sub-ancestor. Consider also the relative numbers of $\alpha$ and $\beta$ readings across the parts of the Commedia, as shown by this extract from the full variant group profile for Rb shown above:

|  | Ash/Ham Mart/Triv Alpha Urb/Rb |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| Totals: | 770 | 874 | 327 | 308 |
| This witness: | 99 | 73 | 96 | 308 |
| Inferno | $28 / 146$ | $21 / 260$ | $4 1 \longdiv { 1 3 8 }$ | $114 / 114$ |
| Purgatorio | $28 / 435$ | $42 / 341$ | $21 / 121$ | $139 / 139$ |
| Paradiso | $43 / 189$ | $10 / 273$ | $34) 68$ | $55 / 55$ |

Within the red box, on the left, are the number of $\alpha$ variants present in Inf., Purg. and Par. respectively: 138, 121 and 68 . Within the blue box, on the right, are the number of $\beta$ variants present in Inf., Purg. and Par. respectively: 114, 139 and 55 . What is striking is not just the correspondence in the numbers between $\alpha$ and $\beta$ for all three cantiche, but that the lower number of Urb/Rb variants in Par. is also matched by a lower number of $\alpha$ variants in the same cantica. Now, if $\alpha$ were truly an independent line of descent, derived from a single sub-ancestor within the tradition, there would be no relationship between what happens in $\alpha$ and what happens in $\beta$. But there does seem to be a relationship. This suggests that our search is rather too simple, and that many of these readings are archetypal readings, present in the ancestor of the whole tradition, removed in $\beta$ but tending to persist in manuscripts not descending from $\beta$. Confirmation of this is the high proportion of putative $\alpha$ readings accepted by Petrocchi: according to VBase, he thinks that 225 of these 327 " $\alpha$ " readings are ancestral to the whole tradition, and takes these into his edition. (Sanguineti, on the other hand, accepts only six). However, this leaves 102 readings which Petrocchi does not believe ancestral to the whole tradition and so possibly introduced by an $\alpha$ ancestor. These one hundred or so readings are central to the argument for $\alpha$ : see the discussion below. Further support for the likelihood that a considerable number of readings identified as $\alpha$ by VBase are actually ancestral is given by Shaw's analysis of the 327 readings. In 123 of these 327, she discovered that the $\alpha$ and $\beta$ readings are actually variants at the same locus, for example at Inf. i 89:

| 89 aiutami da lei, famoso saggio, |  |
| :--- | :--- |
| aiutami | Ash Ham-orig Ham-c1 LauSC Mart Rb Triv Urb FS PET |
| da | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| lei | Ash Ham LauSC Mart Rb Triv Urb FS PET |
| famoso saggio | Ash Ham Mart Triv PET |
| famoso e saggio | LauSC Rb Urb FS |

Here, the VBase searches for $\alpha$ and $\beta(=\mathrm{Urb} / \mathrm{Rb})$ both return a variant at Inf. i 89: famoso e saggio as the $\beta$ reading, famoso saggio as the $\alpha$ reading. Petrocchi accepts famoso saggio, which seems likely to us to have been the archetypal reading.

Once again, one has to follow the VBase analysis by close analysis of the readings themselves. Particularly significant are two groups of readings. The first is the one hundred or so readings identified above which are present in the $\alpha$ tradition but, on Petrocchi's analysis, are not archetypal to the whole tradition. The second (partially overlapping the first) consists of those cases where $\beta$ (often, Urb alone) has a reading apparently archetypal to the whole tradition, but lost everywhere else. (The two groups overlap in those cases where there is a single alpha reading, rather than several readings.) VBase shows us that there are 28 readings in the Commedia present only in Urb and accepted by both Petrocchi and Sanguineti:


A further sixteen are present only in Rb and Urb, and accepted by both Petrocchi and Sanguineti:

About VBase

$\bigcirc$ Mart/Triv $\bigcirc$ Ash/Ham $\bigcirc$ Alpha $\bigcirc$ Urb/Rb $\bigcirc$ Martini's collation $\bigcirc$ Editions $\bigcirc$ PET/FS disagree $\bigcirc$ FS/Urb, not PET

## Search

16 variants found. Displaying variants 1 to 50

Typical of these forty-four readings are:
Inf. i 4: Abi: UFsPet; $E$ all others
Inf. vii 67: «Maestro mio», diss' io: RUFsPet alone have mio; the word is omitted everywhere else
Inf. xi 55: incida: UFsPet; uccida all others
Inf. xxxii 122: Tebaldello RUFsPet; Tribaldello all others
Purg. xxxii 66: cui pur RUFsPet; cui piu all others
Par. xv 36: gloria UFsPet; gratia all others
The hypothesized $\alpha$ exemplar gives a ready explanation for the cases where all (or nearly all) other witnesses have a single alternative to the archetypal reading preserved in $\beta$ : the archetypal reading was replaced in $\alpha$. This would explain the $102 \alpha$ readings noted above (which include many of the forty-four just discussed) which Petrocchi does not regard as archetypal to the whole tradition. Some of these are particularly striking: thus Purg. xxi 61, where both Petrocchi's $a$ and $b$ branches read soluer, for $\beta$ sol voler (accepted by Petrocchi and Sanguineti). Removing $\alpha$ requires that an alternative explanation (convergent error, where all the other branches but $\beta$ independently introduce the same reading, or an archetypal error corrected only in $\beta$ ) must be found. ${ }^{154}$ In this

[^90]analysis, we are able to include manuscripts only from Petrocchi's $a$ and $b$ branches, and a full account of $\alpha$ must include manuscripts from his $c$ branch.

On balance, the number of readings which are difficult to explain if there were no $\alpha$, and the striking nature of some of these, suggest that (as Petrocchi argues) there was an $\alpha$ exemplar close to the archetype; that this exemplar did introduce significant readings into the tradition; and that we are dealing with a twoheaded stemma. This analysis suggests that there are around one hundred $\alpha$ readings: in essence, the 327 readings found in our VBase search for $\alpha$ less the 225 accepted by Petrocchi as ancestral to the whole tradition. Further analysis of the groups which make up $\alpha$ (Petrocchi's $a b c$ ), together with La, will cast more light on this question.

In summary, this analysis has confirmed the major elements of Petrocchi's account of the tradition. Particularly, this analysis agrees with Petrocchi against Sanguineti on the single most important point of difference between the two editions, the affiliation of Rb ; however, it agrees with Sanguineti against Petrocchi that Ash and Ham are collaterali. It has also highlighted areas of the text where the witness relations, so stable through most of the length of the Commedia for these seven witnesses, vary: thus the first seven canti of Inferno and the last thirteen of Paradiso. Revealingly, our analysis has been most productive when we begin with Petrocchi's perceptions and then extend or refine them. Thus, his grouping of six of the seven witnesses into three pairs is fundamental to our analysis too. Without Petrocchi to build on, we could not have got so far. Future analysis may profitably also follow Petrocchi's lead, and concentrate first on the manuscripts at the top of his stemma: the other manuscripts beside Ash/Ham in his $b$ group; his $c$ group; La and Mad.

[^91]
## VII. Appendices

## Appendix A: Barbi's loci

This is the list known as Barbi's 400 loci (in fact 396 lines of text), published in 1891 in the Bullettino della Società Dantesca Italiana, which both provided the starting-point and determined the methodology for Sanguineti's re-examination of the textual tradition of the poem. The lines are here cited as they appear in the Petrocchi edition. By clicking on the arrow before any line, the collation for that line in the 'Sanguineti seven' manuscripts will be displayed on screen. Lines marked with an asterisk are used by Sanguineti in his argument about the stemma for the tradition.

Inferno
$\rightarrow 1$. Inf. i 3 ché la diritta via era smarrita.
$\rightarrow^{*}$ 2. Inf. i 4 Ahi quanto a dir qual era è cosa dura
$\rightarrow$ 3. Inf. i 15 che m' avea di paura il cor compunto,
$\rightarrow$ *4. Inf. i 28 Poi ch' è posato un poco il corpo lasso,
$\rightarrow$ 5. Inf. i 47 con la test' alta e con rabbiosa fame,
$\rightarrow$ 6. Inf. i 116 vedrai li antichi spiriti dolenti,
$\rightarrow$ *7. Inf. ii 53 e donna mi chiamò beata e bella,
$\rightarrow$ *8. Inf. ii 56 e cominciommi a dir soave e piana,
$\rightarrow{ }^{*}$. Inf. iii 7 Dinanzi a me non fuor cose create
$\rightarrow$ 10. Inf. iii 41 né lo profondo inferno li riceve,
$\rightarrow$ 11. Inf. iii 59 vidi e conobbi l' ombra di colui
$\rightarrow{ }^{*} 12$. Inf. iii 72 per ch' io dissi: «Maestro, or mi concedi
$\rightarrow$ 13. Inf. iii 116 gittansi di quel lito ad una ad una,
$\rightarrow$ *14. Inf. iv 23 Così si mise e così mi fé intrare
$\rightarrow{ }^{*} 15$. Inf. iv 24 nel primo cerchio che l' abisso cigne.
$\rightarrow$ 16. Inf. iv 83 vidi quattro grand' ombre a noi venire:
$\rightarrow$ 17. Inf. iv 99 E 'l mio maestro sorrise di tanto;
$\rightarrow$ *18. Inf. iv 141 Tulïo e Lino e Seneca morale;
$\rightarrow{ }^{*}$ 19. Inf. v 28 Io venni in loco d' ogne luce muto,
$\rightarrow{ }^{*}$ 20. Inf. v 41 nel freddo tempo, a schiera larga e piena,
$\rightarrow{ }^{*}$ 21. Inf. v 73 I’ cominciai: «Poeta, volontieri
$\rightarrow$ 22. Inf. v 83 con l' ali alzate e ferme al dolce nido
$\rightarrow 23$. Inf. v 84 vegnon per l' aere, dal voler portate;
$\rightarrow$ *24. Inf. v 126 dirò come colui che piange e dice.
$\rightarrow$ *25. Inf. v 134 esser basciato da cotanto amante,
$\rightarrow{ }^{*} 26$. Inf. vi 97 ciascun rivederà la trista tomba,
$\rightarrow$ *27. Inf. vii 108 al piè de le maligne piagge grige.
$\rightarrow$ 28. Inf. viii 78 le mura mi parean che ferro fosse.
$\rightarrow$ 29. Inf. viii 101 e se 'l passar più oltre ci è negato,
$\rightarrow$ 30. Inf. ix 53 dicevan tutte riguardando in giuso;
$\rightarrow$ 31. Inf. ix 59 mi volse, e non si tenne a le mie mani,
$\rightarrow$ 32. Inf. ix 64 E già venìa su per le torbide onde
$\rightarrow$ *33. Inf. ix 89 Venne a la porta e con una verghetta
$\rightarrow$ 34. Inf. x 1 Ora sen va per un secreto calle,
$\rightarrow$ *35. Inf. x 20 a te mio cuor se non per dicer poco,
$\rightarrow$ 36. Inf. x 111 che 'l suo nato è co' vivi ancor congiunto;
$\rightarrow$ *37. Inf. x 136 che 'nfin là sù facea spiacer suo lezzo.
$\rightarrow$ *38. Inf. xi 56 pur lo vinco d' amor che fa natura;
$\rightarrow$ *39. Inf. xi 78 o ver la mente dove altrove mira?
$\rightarrow$ *40. Inf. xi 84 men Dio offende e men biasimo accatta?
$\rightarrow$ 41. Inf. xi 90 la divina vendetta li martelli».
$\rightarrow$ *42. Inf. xi 106 Da queste due, se tu ti rechi a mente
$\rightarrow$ *43. Inf. xi 108 prender sua vita e avanzar la gente;
$\rightarrow$ *44. Inf. xii 16 Lo savio mio inver' lui gridò: «Forse
$\rightarrow$ *45. Inf. xii 28 Così prendemmo via giù per lo scarco
$\rightarrow 46$. Inf. xii 125 quel sangue, sì che cocea pur li piedi;
$\rightarrow$ *47. Inf. xii 134 quell' Attila che fu flagello in terra,
$\rightarrow$ *48. Inf. xiii 41 da l' un de' capi, che da l' altro geme
$\rightarrow$ *49. Inf. xiii 43 sì de la scheggia rotta usciva insieme
$\rightarrow$ *50. Inf. xiii 63 tanto ch' i' ne perde' li sonni e ' polsi.
$\rightarrow$ 51. Inf. xiii 116 nudi e graffiati, fuggendo sì forte,
$\rightarrow$ *52. Inf. xiv 52 Se Giove stanchi 'l suo fabbro da cui
$\rightarrow$ *53. Inf. xiv 70 Dio in disdegno, e poco par che 'l pregi;
$\rightarrow$ *54. Inf. xiv 75 ma sempre al bosco tien li piedi stretti».
$\rightarrow$ 55. Inf. xiv 77 fuor de la selva un picciol fiumicello,
$\rightarrow$ *56. Inf. xv 29 e chinando la mano a la sua faccia,
$\rightarrow$ *57. Inf. xv 87 convien che ne la mia lingua si scerna.
$\rightarrow$ 58. Inf. xvi 14 volse 'l viso ver' me, e «Or aspetta»,
$\rightarrow$ *59. Inf. xvi 15 disse, «a costor si vuole esser cortese.
$\rightarrow$ 60. Inf. xvi 26 drizzava a me, sì che 'n contraro il collo
$\rightarrow$ 61. Inf. xvi 45 la fiera moglie più ch' altro mi nuoce».
$\rightarrow$ *62. Inf. xvi 104 trovammo risonar quell' acqua tinta,
$\rightarrow{ }^{*}$ 63. Inf. xvii 6 vicino al fin d' i passeggiati marmi.
$\rightarrow{ }^{*}$ 64. Inf. xvii 50 or col ceffo or col piè, quando son morsi
$\rightarrow$ *65. Inf. xvii 51 o da pulci o da mosche o da tafani.
$\rightarrow$ 66. Inf. xvii 74 Qui distorse la bocca e di fuor trasse
$\rightarrow{ }^{*} 67$. Inf. xvii 95 ad altro forse, tosto ch' i' montai
$\rightarrow$ 68. Inf. xviii 23 novo tormento e novi frustatori,
$\rightarrow$ *69. Inf. xviii 82 E 'l buon maestro, sanza mia dimanda,
$\rightarrow{ }^{*} 70$. Inf. xviii 116 vidi un col capo sì di merda lordo,
$\rightarrow$ 71. Inf. xix 59 per non intender ciò ch' è lor risposto,
$\rightarrow$ *72. Inf. xix 94 Né Pier né li altri tolsero a Matia
$\rightarrow * 73$. Inf. xix 117 che da te prese il primo ricco patre!».
$\rightarrow$ *74. Inf. xxi 25 Allor mi volsi come l' uom cui tarda
$\rightarrow$ 75. Inf. xxi 28 che, per veder, non indugia 'l partire:
$\rightarrow$ 76. Inf. xxi 71 e volser contra lui tutt' i runcigli;
$\rightarrow$ *77. Inf. xxi 106 Poi disse a noi: «Più oltre andar per questo
$\rightarrow$ *78. Inf. xxi 113 mille dugento con sessanta sei
$\rightarrow$ *79. Inf. xxii 6 fedir torneamenti e correr giostra;
$\rightarrow$ 80. Inf. xxii 58 Tra male gatte era venuto 'l sorco;
$\rightarrow{ }^{*}$ 81. Inf. xxiii 132 che vegnan d' esto fondo a dipartirci».
$\rightarrow$ 82. Inf. xxiv 72 per ch' io: «Maestro, fa che tu arrivi
$\rightarrow{ }^{*} 83$. Inf. xxiv 104 la polver si raccolse per sé stessa
$\rightarrow$ *84. Inf. xxiv 119 Oh potenza di Dio, quant' è severa,
$\rightarrow$ *85. Inf. xxiv 141 se mai sarai di fuor da' luoghi bui,
$\rightarrow$ *86. Inf. xxv 16 El si fuggì che non parlò più verbo;
$\rightarrow$ 87. Inf. xxv 18 venir chiamando: «Ov’ è, ov’ è l’ acerbo?».
$\rightarrow$ 88. Inf. xxv 110 che si perdeva là, e la sua pelle
$\rightarrow$ *89. Inf. xxv 144 la novità se fior la penna abborra.
$\rightarrow$ 90. Inf. xxvi 15 rimontò ' 1 duca mio e trasse mee;
$\rightarrow$ *91. Inf. xxvi 41 del fosso, ché nessuna mostra 'l furto,
$\rightarrow$ *92. Inf. xxvi 57 a la vendetta vanno come a l' ira;
$\rightarrow$ *93. Inf. xxvii 4 quand' un' altra, che dietro a lei venìa,
$\rightarrow$ *94. Inf. xxvii 8 col pianto di colui, e ciò fu dritto,
$\rightarrow$ *95. Inf. xxvii 65 non tornò vivo alcun, s' i' odo il vero,
$\rightarrow$ *96. Inf. xxvii 70 se non fosse il gran prete, a cui mal prenda!,
$\rightarrow$ 97. Inf. xxviii 10 per li Troiani e per la lunga guerra
$\rightarrow$ 98. Inf. xxviii 71 e cu' io vidi in su terra latina,
$\rightarrow$ 99. Inf. xxix 46 Qual dolor fora, se de li spedali
$\rightarrow{ }^{*} 100$. Inf. xxix 55 giù ver' lo fondo, là 've la ministra
$\rightarrow$ 101. Inf. xxix 73 Io vidi due sedere a sé poggiati,
$\rightarrow{ }^{*}$ 102. Inf. xxx 6 andar carcata da ciascuna mano,
$\rightarrow{ }^{*}$ 103. Inf. xxx 18 e del suo Polidoro in su la riva
$\rightarrow$ 104. Inf. xxx 44 falsificare in sé Buoso Donati,
$\rightarrow{ }^{*}$ 105. Inf. xxx 87 e men d' un mezzo di traverso non ci ha.
$\rightarrow$ *106. Inf. xxx 105 col braccio suo, che non parve men duro,
$\rightarrow{ }^{*}$ 107. Inf. xxxi 39 fuggiemi errore e cresciemi paura;
$\rightarrow$ 108. Inf. xxxi 60 e a sua proporzione eran l' altre ossa;
$\rightarrow{ }^{*}$ 109. Inf. xxxii 128 così 'l sovran li denti a l' altro pose
$\rightarrow{ }^{*} 110$. Inf. xxxiii 26 più lune già, quand' io feci 'l mal sonno
$\rightarrow$ *111. Inf. xxxiii 43 Già eran desti, e l' ora s' appressava
$\rightarrow$ 112. Inf. xxxiii 72 tra 'l quinto di e 'l sesto; ond' io mi diedi,
$\rightarrow{ }^{*}$ 113. Inf. xxxiii 74 e due dì li chiamai, poi che fur morti.
$\rightarrow$ 114. Inf. xxxiv 17 ch' al mio maestro piacque di mostrarmi
$\rightarrow$ 115. Inf. xxxiv 43 e la destra parea tra bianca e gialla;
$\rightarrow{ }^{*}$ 116. Inf. xxxiv 93 qual è quel punto ch' io avea passato.
$\rightarrow$ *117. Inf. xxxiv 99 ch' avea mal suolo e di lume disagio.

Purgatorio
$\rightarrow$ 118. Purg. i 15 del mezzo, puro infino al primo giro,
$\rightarrow$ 119. Purg. i 27 poi che privato se' di mirar quelle!
$\rightarrow{ }^{*} 120$. Purg. i 86 mentre ch' i' fu' di là», diss' elli allora,
$\rightarrow{ }^{*}$ 121. Purg. i 88 Or che di là dal mal fiume dimora,
$\rightarrow$ 122. Purg. i 112 El cominciò: «Figliuol, segui i miei passi:
$\rightarrow$ 123. Purg. i 119 com' om che torna a la perduta strada,
$\rightarrow{ }^{*}$ 124. Purg. ii 10 Noi eravam lunghesso mare ancora,
$\rightarrow{ }^{*} 125$. Purg. ii 35 trattando l' aere con l' etterne penne,
$\rightarrow$ 126. Purg. ii 44 tal che faria beato pur descripto;
$\rightarrow{ }^{*}$ 127. Purg. ii 93 diss' io; «ma a te com' è tanta ora tolta?».
$\rightarrow{ }^{*}$ 128. Purg. ii 99 chi ha voluto intrar, con tutta pace.
$\rightarrow{ }^{*}$ 129. Purg. ii 107 memoria o uso a l'amoroso canto
$\rightarrow$ 130. Purg. ii 110 l' anima mia, che, con la sua persona
$\rightarrow{ }^{*}$ 131. Purg. ii 124 Come quando, cogliendo biado o loglio,
$\rightarrow{ }^{*}$ 132. Purg. iii 35 possa trascorrer la infinita via
$\rightarrow$ 133. Purg. iii 50 la più rotta ruina è una scala,
$\rightarrow{ }^{*}$ 134. Purg. iii 104 tu se', così andando, volgi 'l viso:
$\rightarrow$ 135. Purg. iv 32 e d' ogne lato ne stringea lo stremo,
$\rightarrow$ 136. Purg. iv 54 che suole a riguardar giovare altrui.
$\rightarrow$ *137. Purg. iv 72 che mal non seppe carreggiar Fetòn,
$\rightarrow$ 138. Purg. iv 135 l' altra che val, che 'n ciel non è udita?».
$\rightarrow$ 139. Purg. v 38 di prima notte mai fender sereno,
$\rightarrow$ *140. Purg. v 44 e vegnonti a pregar», disse 'l poeta:
$\rightarrow{ }^{*}$ 141. Purg. v 74 ond' uscì'l sangue in sul quale io sedea,
$\rightarrow$ 142. Purg. v 88 Io fui di Montefeltro, io son Bonconte;
$\rightarrow$ 143. Purg. vi 15 e l' altro ch' annegò correndo in caccia.
$\rightarrow{ }^{*}$ 144. Purg. vi 49 E io: «Segnore, andiamo a maggior fretta,
$\rightarrow{ }^{*}$ 145. Purg. vi 124 Ché le città d’ Italia tutte piene
$\rightarrow{ }^{*}$ 146. Purg. vi 125 son di tiranni, e un Marcel diventa
$\rightarrow$ 147. Purg. vi 135 sanza chiamare, e grida: «I’ mi sobbarco!».
$\rightarrow{ }^{*}$ 148. Purg. vii 15 e abbracciòl là 've 'l minor s' appiglia.
$\rightarrow$ 149. Purg. vii 26 a veder l' alto Sol che tu disiri
$\rightarrow{ }^{*} 150$. Purg. vii 43 Ma vedi già come dichina il giorno,
$\rightarrow{ }^{*} 151$. Purg. vii 51 d' altrui, o non sarria ché non potesse?».
$\rightarrow{ }^{*}$ 152. Purg. vii 58 Ben si poria con lei tornare in giuso
$\rightarrow{ }^{*} 153$. Purg. vii 69 e là il novo giorno attenderemo».
$\rightarrow$ 154. Purg. viii 64 L' uno a Virgilio e l' altro a un si volse
$\rightarrow$ 155. Purg. viii 121 «Oh!», diss' io lui, «per li vostri paesi
$\rightarrow{ }^{*}$ 156. Purg. viii 129 del pregio de la borsa e de la spada.
$\rightarrow$ 157. Purg. ix 12 là 've già tutti e cinque sedavamo.
$\rightarrow$ 158. Purg. ix 28 Poi mi parea che, poi rotata un poco,
$\rightarrow$ 159. Purg. ix 74 che là dove pareami prima rotto,
$\rightarrow{ }^{*}$ 160. Purg. x 14 tanto che pria lo scemo de la luna
$\rightarrow$ 161. Purg. x 49 Per ch' i' mi mossi col viso, e vedea
$\rightarrow$ 162. Purg. xi 36 possano uscire a le stellate ruote.
$\rightarrow$ 163. Purg. xi 51 possibile a salir persona viva.
$\rightarrow$ 164. Purg. xi 98 la gloria de la lingua; e forse è nato
$\rightarrow{ }^{*}$ 165. Purg. xi 103 Che voce avrai tu più, se vecchia scindi
$\rightarrow{ }^{*} 166$. Purg. xi 132 come fu la venuta lui largita?».
$\rightarrow$ 167. Purg. xii 5 ché qui è buono con l' ali e coi remi,
$\rightarrow{ }^{*}$ 168. Purg. xii 13 ed el mi disse: «Volgi li occhi in giùe:
$\rightarrow{ }^{*}$ 169. Purg. xii 14 buon ti sarà, per tranquillar la via,
$\rightarrow{ }^{*} 170$. Purg. xii 29 celestïal giacer, da l' altra parte,
$\rightarrow{ }^{*}$ 171. Purg. xii 47 quivi 'l tuo segno; ma pien di spavento
$\rightarrow{ }^{*}$ 172. Purg. xii 82 Di reverenza il viso e li atti addorna,
$\rightarrow{ }^{*}$ 173. Purg. xii 94 A questo invito vegnon molto radi:
$\rightarrow{ }^{*}$ 174. Purg. xiii 1 Noi eravamo al sommo de la scala,
$\rightarrow$ 175. Purg. xiii 3 lo monte che salendo altrui dismala.
$\rightarrow$ 176. Purg. xiii 43 Ma ficca li occhi per l' aere ben fiso,
$\rightarrow{ }^{*} 177$. Purg. xiii 105 fammiti conto o per luogo o per nome».
$\rightarrow{ }^{*}$ 178. Purg. xiii 121 tanto ch' io volsi in sù l' ardita faccia,
$\rightarrow$ 179. Purg. xiii 144 di là per te ancor li mortai piedi».
$\rightarrow$ 180. Purg. xiii 154 ma più vi perderanno li ammiragli》.
$\rightarrow$ 181. Purg. xiv 60 del fiero fiume, e tutti li sgomenta.
$\rightarrow{ }^{*}$ 182. Purg. xiv 67 Com' a l' annunzio di dogliosi danni
$\rightarrow{ }^{*}$ 183. Purg. xiv 136 Come da lei l' udir nostro ebbe triegua,
$\rightarrow$ 184. Purg. xv 15 che del soverchio visibile lima.
$\rightarrow{ }^{*}$ 185. Purg. xvi 12 in cosa che 'l molesti, o forse ancida,
$\rightarrow$ 186. Purg. xvi 142 Vedi l' albor che per lo fummo raia
$\rightarrow{ }^{*}$ 187. Purg. xvi 145 Così tornò, e più non volle udirmi.
$\rightarrow{ }^{*}$ 188. Purg. xvii 30 che fu al dire e al far così intero.
$\rightarrow{ }^{*}$ 189. Purg. xvii 55 «Questo è divino spirito, che ne la
$\rightarrow{ }^{*}$ 190. Purg. xvii 117 ch' el sia di sua grandezza in basso messo;
$\rightarrow$ 191. Purg. xviii 10 Ond’ io: «Maestro, il mio veder s’ avviva
$\rightarrow{ }^{*}$ 192. Purg. xviii 57 e de’ primi appetibili l' affetto,
$\rightarrow$ 193. Purg. xviii 58 che sono in voi sì come studio in ape
$\rightarrow$ 194. Purg. xviii 76 La luna, quasi a mezza notte tarda,
$\rightarrow{ }^{*}$ 195. Purg. xviii 83 Pietola più che villa mantoana,
$\rightarrow{ }^{*}$ 196. Purg. xviii 111 però ne dite ond' è presso il pertugio».
$\rightarrow$ *197. Purg. xix 34 Io mossi li occhi, e ’l buon maestro: «Almen tre
$\rightarrow$ 198. Purg. xix 35 voci t' ho messe!», dicea, «Surgi e vieni;
$\rightarrow$ 199. Purg. xix 85 e volsi li occhi a li occhi al segnor mio:
$\rightarrow{ }^{*}$ 200. Purg. xix 125 e quanto fia piacer del giusto Sire,
$\rightarrow$ 201. Purg. xix 140 ché la tua stanza mio pianger disagia,
$\rightarrow{ }^{*}$ 202. Purg. xx 8 per li occhi il mal che tutto 'l mondo occupa,
$\rightarrow{ }^{*}$ 203. Purg. xx 9 da l' altra parte in fuor troppo s' approccia.
$\rightarrow$ 204. Purg. xx 67 Carlo venne in Italia e, per ammenda,
$\rightarrow{ }^{*}$ 205. Purg. xx 90 e tra vivi ladroni esser anciso.
$\rightarrow$ 206. Purg. xx 104 cui traditore e ladro e paricida
$\rightarrow$ 207. Purg. xxi 101 visse Virgilio, assentirei un sole
$\rightarrow{ }^{*}$ 208. Purg. xxi 105 ma non può tutto la virtù che vuole;
$\rightarrow$ 209. Purg. xxi 112 e «Se tanto labore in bene assommi»,
$\rightarrow$ *210. Purg. xxii 6 con ' sitiunt', sanz' altro, ciò forniro.
$\rightarrow{ }^{*}$ 211. Purg. xxii 51 con esso insieme qui suo verde secca;
$\rightarrow$ *212. Purg. xxii 58 per quello che Cliò teco lì tasta,
$\rightarrow{ }^{*}$ 213. Purg. xxii 81 ond' io a visitarli presi usata.
$\rightarrow$ *214. Purg. xxii 87 fer dispregiare a me tutte altre sette.
$\rightarrow{ }^{*}$ 215. Purg. xxii 97 dimmi dov' è Terrenzio nostro antico,
$\rightarrow$ *216. Purg. xxii 105 che sempre ha le nutrice nostre seco.
$\rightarrow$ 217. Purg. xxiii 2 ficcava ïo sì come far suole
$\rightarrow 218$. Purg. xxiii 5 vienne oramai, ché 'l tempo che n' è imposto
$\rightarrow$ *219. Purg. xxiii 36 e quel d' un' acqua, non sappiendo como?
$\rightarrow{ }^{*} 220$. Purg. xxiii 44 ma ne la voce sua mi fu palese
$\rightarrow 221$. Purg. xxiii 82 come se' tu qua sù venuto ancora?
$\rightarrow{ }^{*}$ 222. Purg. xxiii 84 dove tempo per tempo si ristora».
$\rightarrow$ *223. Purg. xxiii 97 O dolce frate, che vuo' tu ch' io dica?
$\rightarrow 224$. Purg. xxiii 106 Ma se le svergognate fosser certe
$\rightarrow{ }^{*} 225$. Purg. xxiv 36 che più parea di me aver contezza.
$\rightarrow$ *226. Purg. xxiv 58 Io veggio ben come le vostre penne
$\rightarrow$ 227. Purg. xxiv 61 e qual più a gradire oltre si mette,
$\rightarrow$ 228. Purg. xxiv 64 Come li augei che vernan lungo 'l Nilo,
$\rightarrow$ *229. Purg. xxiv 125 per che no i volle Gedeon compagni,
$\rightarrow{ }^{*} 230$. Purg. xxv 21 là dove l' uopo di nodrir non tocca?».
$\rightarrow$ *231. Purg. xxv 31 «Se la veduta etterna li dislego»,
$\rightarrow$ 232. Purg. xxv 37 Sangue perfetto, che poi non si beve
$\rightarrow{ }^{*} 233$. Purg. xxv 51 ciò che per sua matera fé constare.
$\rightarrow{ }^{*} 234$. Purg. xxv 75 che vive e sente e sé in sé rigira.
$\rightarrow{ }^{*}$ 235. Purg. xxvi 7 e io facea con l' ombra più rovente
$\rightarrow{ }^{*}$ 236. Purg. xxvi 72 lo qual ne li alti cuor tosto s' attuta,
$\rightarrow$ *237. Purg. xxvi 75 «per morir meglio, esperïenza imbarche!
$\rightarrow$ 238. Purg. xxvii 16 In su le man commesse mi protesi,
$\rightarrow$ *239. Purg. xxvii 41 mi volsi al savio duca, udendo il nome
$\rightarrow$ 240. Purg. xxvii 81 poggiato s' è e lor di posa serve;
$\rightarrow{ }^{*}$ 241. Purg. xxvii 87 fasciati quinci e quindi d' alta grotta.
$\rightarrow$ 242. Purg. xxvii 88 Poco parer potea lì del di fori;
$\rightarrow{ }^{*} 243$. Purg. xxviii 12 u' la prim' ombra gitta il santo monte;
$\rightarrow 244$. Purg. xxviii 34 Coi piè ristetti e con li occhi passai
$\rightarrow$ 245. Purg. xxviii 68 trattando più color con le sue mani,
$\rightarrow 246$. Purg. xxviii 123 come fiume ch' acquista e perde lena;
$\rightarrow$ *247. Purg. xxviii 140 l' età de l' oro e suo stato felice,
$\rightarrow$ 248. Purg. xxix 14 quando la donna tutta a me si torse,
$\rightarrow$ *249. Purg. xxix 45 del mezzo ch' era ancor tra noi e loro;
$\rightarrow 250$. Purg. xxix 62 sì ne l' affetto de le vive luci,
$\rightarrow$ 251. Purg. xxix 71 che solo il fiume mi facea distante,
$\rightarrow{ }^{*}$ 252. Purg. xxix 135 ma pari in atto e onesto e sodo.
$\rightarrow$ 253. Purg. xxx 4 e che faceva lì ciascuno accorto
$\rightarrow$ 254. Purg. xxx 15 la revestita voce alleluiando,
$\rightarrow$ *255. Purg. xxx 40 Tosto che ne la vista mi percosse
$\rightarrow$ *256. Purg. xxx 92 anzi 'l cantar di quei che notan sempre
$\rightarrow{ }^{*}$ 257. Purg. xxx 111 secondo che le stelle son compagne,
$\rightarrow{ }^{*} 258$. Purg. xxxi 123 or con altri, or con altri reggimenti.
$\rightarrow$ 259. Purg. xxxii 13 Ma poi ch' al poco il viso riformossi
$\rightarrow$ *260. Purg. xxxii 39 di foglie e d' altra fronda in ciascun ramo.
$\rightarrow$ *261. Purg. xxxii 102 di quella Roma onde Cristo è romano.
$\rightarrow{ }^{*}$ 262. Purg. xxxii 147 simile mostro visto ancor non fue.
$\rightarrow$ 263. Purg. xxxiii 46 E forse che la mia narrazion buia,
$\rightarrow$ 264. Purg. xxxiii 62 cinquemilia anni e più l' anima prima
$\rightarrow$ *265. Purg. xxxiii 107 chi va dinanzi a gente per iscorta
$\rightarrow$ 266. Purg. xxxiii 123 che l' acqua di Letè non gliel nascose».

## Paradiso

$\rightarrow$ 267. Par. i 25 vedra'mi al piè del tuo diletto legno
$\rightarrow$ *268. Par. i 26 venire, e coronarmi de le foglie
$\rightarrow{ }^{*}$ 269. Par. i 35 forse di retro a me con miglior voci
$\rightarrow$ 270. Par. i 54 e fissi li occhi al sole oltre nostr' uso.
$\rightarrow$ 271. Par. i 78 con l' armonia che temperi e discerni,
$\rightarrow{ }^{*}$ 272. Par. i 122 del suo lume fa'l ciel sempre quïeto
$\rightarrow$ 273. Par. ii 121 Questi organi del mondo così vanno,
$\rightarrow$ 274. Par. ii 124 Riguarda bene omai sì com' io vado
$\rightarrow$ 275. Par. ii 141 nel qual, sì come vita in voi, si lega.
$\rightarrow$ 276. Par. iii 15 non vien men forte a le nostre pupille;
$\rightarrow$ 277. Par. iii 16 tali vid' io più facce a parlar pronte;
$\rightarrow$ 278. Par. iii 37 «O ben creato spirito, che a’ rai
$\rightarrow$ *279. Par. iii 55 E questa sorte che par giù cotanto,
$\rightarrow$ 280. Par. iv 39 de la celestïal c' ha men salita.
$\rightarrow{ }^{*}$ 281. Par. iv 81 possendo rifuggir nel santo loco.
$\rightarrow$ *282. Par. iv 121 non è l'affezion mia tanto profonda,
$\rightarrow$ *283. Par. iv 132 ch' al sommo pinge noi di collo in collo.
$\rightarrow$ *284. Par. v 34 Tu se’ omai del maggior punto certo;
$\rightarrow$ *285. Par. v 36 che par contra lo ver ch' i' t' ho scoverto,
$\rightarrow$ *286. Par. v 88 Lo suo tacere e 'l trasmutar sembiante
$\rightarrow$ *287. Par. v 95 come nel lume di quel ciel si mise,
$\rightarrow$ 288. Par. v 111 di più savere angosciosa carizia;
$\rightarrow$ *289. Par. v 120 di noi chiarirti, a tuo piacer ti sazia».
$\rightarrow$ *290. Par. v 125 nel proprio lume, e che de li occhi il traggi,
$\rightarrow{ }^{*}$ 291. Par. v 128 anima degna, il grado de la spera
$\rightarrow$ *292. Par. vi 136 E poi il mosser le parole biece
$\rightarrow$ 293. Par. vii 21 punita fosse, $\mathrm{t}^{\prime}$ ha in pensier miso;
$\rightarrow$ 294. Par. vii 111 a rilevarvi suso, fu contenta.
$\rightarrow$ *295. Par. vii 124 Tu dici: «Io veggio l’ acqua, io veggio il foco,
$\rightarrow$ *296. Par. vii 125 l' aere e la terra e tutte lor misture
$\rightarrow$ 297. Par. vii 131 nel qual tu se', dir si posson creati,
$\rightarrow$ *298. Par. viii 64 Fulgeami già in fronte la corona
$\rightarrow$ *299. Par. viii 94 Questo io a lui; ed elli a me: «S’ io posso
$\rightarrow$ 300. Par. viii 127 La circular natura, ch' è suggello
$\rightarrow$ 301. Par. ix 4 ma disse: «Taci e lascia muover li anni»;
$\rightarrow$ 302. Par. ix 19 «Deh, metti al mio voler tosto compenso,
$\rightarrow{ }^{*} 303$. Par. ix 129 e di cui è la 'nvidia tanto pianta,
$\rightarrow$ 304. Par. x 63 mia mente unita in più cose divise.
$\rightarrow$ *305. Par. x 77 si fuor girati intorno a noi tre volte,
$\rightarrow$ *306. Par. x 112 entro v' è l' alta mente u' sì profondo
$\rightarrow$ *307. Par. x 133 Questi onde a me ritorna il tuo riguardo,
$\rightarrow$ 308. Par. xi 26 e là u' dissi: "Non nacque il secondo";
$\rightarrow$ 309. Par. xi 82 Oh ignota ricchezza! oh ben ferace!
$\rightarrow$ *310. Par. xii 40 quando lo 'mperador che sempre regna
$\rightarrow$ *311. Par. xiii 27 e in una persona essa e l'umana.
$\rightarrow$ *312. Par. xiv 21 levan la voce e rallegrano li atti,
$\rightarrow$ 313. Par. xiv 27 lo refrigerio de l' etterna ploia.
$\rightarrow{ }^{*} 314$. Par. xiv 49 onde la vision crescer convene,
$\rightarrow{ }^{*} 315$. Par. xiv 72 sì che la vista pare e non par vera,
$\rightarrow$ *316. Par. xiv 102 che fan giunture di quadranti in tondo.
$\rightarrow$ *317. Par. xiv 113 veloci e tarde, rinovando vista,
$\rightarrow$ *318. Par. xv 48 che nel mio seme se' tanto cortese!».
$\rightarrow$ *319. Par. xvi 10 Dal 'voi' che prima a Roma s' offerie,
$\rightarrow$ 320. Par. xvi 30 luce risplendere a' miei blandimenti;
$\rightarrow$ 321. Par. xvi 47 da poter arme tra Marte e 'l Batista,
$\rightarrow$ *322. Par. xvi 69 come del vostro il cibo che s' appone;
$\rightarrow{ }^{*}$ 323. Par. xvi 144 la prima volta ch’ a città venisti.
$\rightarrow{ }^{*} 324$. Par. xvii 9 segnata bene de la interna stampa:
$\rightarrow$ *325. Par. xvii 56 più caramente; e questo è quello strale
$\rightarrow$ *326. Par. xvii 81 son queste rote intorno di lui torte;
$\rightarrow$ 327. Par. xviii 6 presso a colui ch' ogne torto disgrava».
$\rightarrow{ }^{*}$ 328. Par. xviii 18 mi contentava col secondo aspetto.
$\rightarrow$ 329. Par. xviii 75 fanno di sé or tonda or altra schiera,
$\rightarrow$ 330. Par. xviii 123 che si murò di segni e di martìri.
$\rightarrow$ *331. Par. xix 71 de l' Indo, e quivi non è chi ragioni
$\rightarrow$ 332. Par. xix 102 che fé i Romani al mondo reverendi,
$\rightarrow$ *333. Par. xx 81 tempo aspettar tacendo non patio,
$\rightarrow$ 334. Par. xx 117 fu degna di venire a questo gioco.
$\rightarrow$ 335. Par. xxi 103 Sì mi prescrisser le parole sue,
$\rightarrow$ *336. Par. xxii 22 Come a lei piacque, li occhi ritornai,
$\rightarrow{ }^{*} 337$. Par. xxii 54 ch' io veggio e noto in tutti li ardor vostri,
$\rightarrow$ *338. Par. xxii 151 L’ aiuola che ci fa tanto feroci,
$\rightarrow$ *339. Par. xxii 152 volgendom' io con li etterni Gemelli,
$\rightarrow$ *340. Par. xxiii 42 e fuor di sua natura in giù s' atterra,
$\rightarrow$ 341. Par. xxiii 68 quel che fendendo va l' ardita prora,
$\rightarrow$ *342. Par. xxiii 103 «Io sono amore angelico, che giro
$\rightarrow$ *343. Par. xxiii 111 facean sonare il nome di Maria.
$\rightarrow$ 344. Par. xxiii 114 ne l' alito di Dio e nei costumi,
$\rightarrow{ }^{*}$ 345. Par. xxiii 125 con la sua cima, sì che l' alto affetto
$\rightarrow$ *346. Par. xxiii 133 Quivi si vive e gode del tesoro
$\rightarrow$ *347. Par. xxiv 12 fiammando, volte, a guisa di comete.
$\rightarrow$ *348. Par. xxiv 35 a cui Nostro Segnor lasciò le chiavi,
$\rightarrow$ *349. Par. xxiv 60 faccia li miei concetti bene espressi».
$\rightarrow$ *350. Par. xxiv 61 E seguitai: «Come'l verace stilo
$\rightarrow{ }^{*} 351$. Par. xxiv 64 fede è sustanza di cose sperate
$\rightarrow{ }^{*} 352$. Par. xxiv 119 con la tua mente, la bocca t' aperse
$\rightarrow$ 353. Par. xxv 3 sì che $m$ ' ha fatto per molti anni macro,
$\rightarrow{ }^{*} 354$. Par. xxv 14 di quella spera ond' uscì la primizia
$\rightarrow$ *355. Par. xxv 135 tutti si posano al sonar d' un fischio.
$\rightarrow$ 356. Par. xxvi 1 Mentr' io dubbiava per lo viso spento,
$\rightarrow{ }^{*} 357$. Par. xxvi 18 mi legge Amore o lievemente o forte».
$\rightarrow$ *358. Par. xxvi 24 chi drizzò l' arco tuo a tal berzaglio».
$\rightarrow$ 359. Par. xxvi 87 per la propria virtù che la soblima,
$\rightarrow$ 360. Par. xxvi 93 a cui ciascuna sposa è figlia e nuro,
$\rightarrow$ *361. Par. xxvi 96 e per udirti tosto non la dico».
$\rightarrow$ 362. Par. xxvi 121 e vidi lui tornare a tutt' i lumi
$\rightarrow$ *363. Par. xxvii 57 o difesa di Dio, perché pur giaci?
$\rightarrow$ 364. Par. xxvii 111 l' amor che 'l volge e la virtù ch' ei piove.
$\rightarrow$ *365. Par. xxvii 140 pensa che ' n terra non è chi governi;
$\rightarrow$ *366. Par. xxviii 50 veder le volte tanto più divine,
$\rightarrow{ }^{*} 367$. Par. xxviii 71 l' altro universo seco, corrisponde
$\rightarrow$ 368. Par. xxviii 86 la donna mia del suo risponder chiaro,
$\rightarrow$ *369. Par. xxviii 90 che bolle, come i cerchi sfavillaro.
$\rightarrow{ }^{*} 370$. Par. xxviii 136 E se tanto secreto ver proferse
$\rightarrow$ 371. Par. xxix 47 furon creati e come: sì che spenti
$\rightarrow$ *372. Par. xxix 91 Non vi si pensa quanto sangue costa
$\rightarrow$ *373. Par. xxix 100 e mente, ché la luce si nascose
$\rightarrow{ }^{*} 374$. Par. xxix 125 e altri assai che sono ancor più porci,
$\rightarrow$ 375. Par. xxx 27 la mente mia da me medesmo scema.
$\rightarrow$ 376. Par. xxx 31 ma or convien che mio seguir desista
$\rightarrow$ 377. Par. xxx 39 del maggior corpo al ciel ch' è pura luce:
$\rightarrow$ 378. Par. xxx 54 per far disposto a sua fiamma il candelo».
$\rightarrow$ 379. Par. xxx 124 Nel giallo de la rosa sempiterna,
$\rightarrow$ 380. Par. xxx 148 e farà quel d’ Alagna intrar più giuso».
$\rightarrow$ 381. Par. xxxi 20 di tanta moltitudine volante
$\rightarrow$ 382. Par. xxxi 24 sì che nulla le puote essere ostante.
$\rightarrow * 383$. Par. xxxi 28 Oh trina luce che 'n unica stella
$\rightarrow$ *384. Par. xxxi 54 in nulla parte ancor fermato fiso;
$\rightarrow{ }^{*} 385$. Par. xxxi 80 e che soffristi per la mia salute
$\rightarrow$ 386. Par. xxxi 120 soverchia quella dove 'l sol declina,
$\rightarrow$ *387. Par. xxxi 142 che ' miei di rimirar fé più ardenti.
$\rightarrow$ 388. Par. xxxii 89 piover, portata ne le menti sante
$\rightarrow$ *389. Par. xxxiii 30 ti porgo, e priego che non sieno scarsi, $\rightarrow * 390$. Par. xxxiii 57 e cede la memoria a tanto oltraggio.
$\rightarrow$ 391. Par. xxxiii 73 ché, per tornare alquanto a mia memoria
$\rightarrow$ 392. Par. xxxiii 74 e per sonare un poco in questi versi,
$\rightarrow$ 393. Par. xxxiii 80 per questo a sostener, tanto ch' i' giunsi
$\rightarrow$ *394. Par. xxxiii 89 quasi conflati insieme, per tal modo
$\rightarrow$ 395. Par. xxxiii 98 mirava fissa, immobile e attenta,
$\rightarrow$ *396. Par. xxxiii 143 ma già volgeva il mio disio e 'l velle,

## Appendix B: Robey's metrical markup

We are indebted to David Robey for his permission to use his version of the Petrocchi critical text of the Commedia marked up for metrical analysis. The marked-up version of each line appears in the Collation view directly under that line when one clicks on the word Metre in the top right hand margin. Our hope is that having this material to hand will facilitate comprehension of the effect different variants might have on the scansion of the line.

What follows here is a brief account of the system of notation as it embodies and reflects the basic principles of Italian metrical composition. For a more detailed, more technical and more nuanced account readers are urged to consult David Robey, Sound and Structure in the Divine Comedy (Oxford University Press, 2000), which provides an extended discussion of the rules for scansion followed here, of the methodology on which they are based, and of possible anomalies and difficulties in Dante's poetic practice (it is by no means clear that Dante always followed all the rules for the Italian hendecasyllable that later became canonical').

## The Notation System

For clarity of presentation speech marks - both single ' ' and double «» inverted commas - have been removed from the text.

> denotes an accented syllable: the tenth syllable of a hendecasyllable is always accented, as is either the fourth or sixth syllable in the vast majority of cases. ('Almost all Dante's hendecasyllables, but not quite all, have an accent on the fourth or sixth, and in the majority of these, but by no means always, this accent is followed by a phrase boundary.')
$\wedge \quad$ denotes sinalefe, where adjacent vowels across a word boundary are treated as a single syllable, as is the rule in Italian metrics.
denotes dialefe, where, contrary to the rule, there is a syllable division between adjacent vowels on either side of a word boundary. It is also used to mark a syllable division between adjacent vowels in the same word, as in malestro, for the most part (but not always) in words where the two vowels normally count as separate syllables.

In most cases where two adjacent vowels within a word would normally count as a single syllable, but exceptionally in Dante's text count for two, Petrocchi marks the first vowel (sometimes the second) with a dieresis (dieresi) ", as in piangëa. There is no further marking of the syllable division in these cases in the marked-up text, since the dieresis itself indicates that the vowel on which it sits has full syllabic value. Where two adjacent vowels within a word constitute a single syllable (sineresi), as is the norm in Italian verse, this is not marked.

Formal variants which alter the number of syllables in the line, creating a line of twelve or ten syllables, are retained in the Collation display since in context they are errors. Formal variants which cause an alteration to the pattern of stresses in the line are also registered as variant readings, as are formal variants which involve more than one word (eg. son spiriti/sono spirti). Where formal variants do not affect the syllable count or the distribution of accented syllables in the line, they are regularised (and can be found under Original Spelling), even if they introduce a dialefe or dieresis where previously there was none, unless the dialefe introduced is a dialefe d'eccezione, in which case they are retained and display as variants. A dialefe d'eccezione is a dialefe after an unaccented final syllable of a polysyllabic word (sinalefe is the norm in these circumstances). For
a detailed analysis of the presence of dialefe, sinalefe, dieresis and synaeresis in the text of the Commedia see Chapter 4: Counting Syllables in Robey Sound and Structure 91-129; for a fuller discussion of our regularisation procedure, with examples, see V. The Collation.

## Appendix C: The Commedia project encoding system

## Barbara Bordalejo

The first part of this article describes the development of the encoding system originally devised for the Commedia Project, ${ }^{155}$ and subsequently adapted for other projects. ${ }^{156}$ The second part of the article describes the encodings used for the transcription and editorial phenomena described elsewhere in this publication.

## The Development of the Commedia Encoding System

The transcription and encoding system used in this edition are the result of a concerted effort that started in 2001. ${ }^{157}$ Most of the decisions regarding manuscript transcription were taken early on in the project. ${ }^{158}$ The encoding system, however, matured over a period of several years between 2001 and 2004. Over this time, careful rethinking of the aims of transcription, and of how

[^92]transcripts might most usefully be encoded, led to the project adopting conventions, described here, differing markedly in certain respects from other manuscript transcription systems. Accordingly, the project's work may be of interest to other scholars engaged in manuscript transcription. I offer examples in order to facilitate understanding and further use of the system. ${ }^{159}$

From its beginnings, it was agreed that the Commedia Project's transcription protocols should be based on those of the Società Dantesca for their Dante Online website (http://www.danteonline.it/english/risorse.htm). Indeed the structure of the internal document which was used as a basis for the Commedia transcriptions follows the original order of elements as laid out in the Società Dantesca's website. These guidelines take into consideration practical matters concerning spellings, punctuation, word division and the expansion of abbreviations, and they also offer a form of symbolic representation - based on conventions - to convey the transcriber's interpretation of what he or she believes to be in the manuscripts. For example, the Società Dantesca transcribes a correction in ms. Riccardiana 1005, Inf. i 17 in this way:


These symbols are used to represent a correction. In this case, the correction was carried out by the main scribe of the text - or by a hand which cannot be distinguished from the main hand - indicated by 0 . The complete set of symbols is enclosed in angle brackets. The first word, in this case "di" is the one which was originally in the manuscript, and the last word - "del" - is the one which replaced it. Next to the 0 (representing the main hand or one which cannot be distinguished from it) the plus symbol is used, denoting addition, followed by the letter "i" which indicates that the correction has been introduced between

[^93]the lines, i.e. it is interlinear. The Societa Dantesca guidelines allow the possibility of marginal additions - " $m$ " - or additions within the line - for which they do not use any symbol. In this specific case, according to the transcription produced by the Società Dantesca, the manuscript has the word "di" which has been substituted by the word "del," creating the phrase "del pianeta" instead of the original reading "di pianeta."

A second example can be found in Riccardiano 1005, Inf. i 94: $\mathbb{\text { ait }}$ <crede $+i 0$ cride>

Here, the original reading "crede" is followed by the identifiers for the position and the scribe, and at the end, the modified reading "cride," again, all enclosed in angle brackets.

Although the Società Dantesca's guidelines were useful as a basis for the Commedia Project's transcription protocols, a new encoding system was required in order to record not only that changes had been introduced to the manuscripts, but also more specific details about how these changes came to be. As they stand, the Società Dantesca's guidelines provide information about what the editor believes to be the original reading and the final reading in a document. Consider again the above example <crede +i 0 cride>. This describes the first reading in the document (crede) and the later reading (cride). It also tells us that the second reading is the result of an interlinear (i) insertion (+) and that the correction was carried out by the same scribe or by a hand that cannot be distinguished from his. However, the information that we are given about how the correction was carried out is incomplete. From the encoding alone it is not possible to know whether the whole of the word "cride" was written between the lines or whether it was only the letter "i." The system also offers no information about how or if the original reading was cancelled.

At the same time as we were considering these issues, two major Greek New Testament editing projects were exploring the same problem, of multiple levels
of correction within a particular witness. ${ }^{161}$ There were close informal connections between these projects and the Commedia project, which led to the development of a common approach to the problem. For the New Testament editorial communities, the preservation of the record of corrections within a single witness is critical evidence. Multiple readings in a witness might be evidence of contamination from a different manuscript group, a well-known phenomenon in New Testament editing particularly among later manuscripts. In other cases, alternative readings within manuscripts might be the only extant traces of otherwise lost texts.

Accordingly, the New Testament projects had been routinely recording alternative readings within manuscripts. By early 2001, at the time we commenced work on the Commedia encoding, the New Testament projects had implemented a formal encoding for variants within a document, by the use of the TEI <app> (for "apparatus") element in the encoding of individual witnesses. ${ }^{162}$ This is a standard TEI-XML element used to separate multiple variant readings occurring in a particular place of variation in an individual witness. For example, when a manuscript was amended by its main scribe or by a later corrector, both readings are included as part of the transcription. As employed by the IGNTP and by the Institute for New Testament Studies, there are at least two reading elements in each particular example. In an example from Codex Sinaiticus, quire 66, Folio 5r, first column, line 5 (http://www.codexsinaiticus.org), we find that the reading $\varepsilon \delta \iota \delta \alpha \xi \varepsilon v$ has been corrected to $\varepsilon \delta \iota \delta \alpha с \kappa \varepsilon v$ :

[^94]

This correction is expressed in XML as follows:

```
<app>
<rdg type="main-corr"><w n="11">\varepsilon\deltaı\delta\alpha\xi\varepsilonv</w></rdg>
<rdg type="corr" n="ca"><w n="11">\varepsilon\deltat\delta\alphacк\varepsilonv</w></rdg>
</app>
```

The transcription makes no attempt to represent the document and it does not include the standard <add> and <del> elements. ${ }^{163}$ The recorded readings, both included within the <app> element, are explicit declarations of different states of the text as perceived by the editors and are presented as complete and meaningful entries. These readings are particularly useful in the context of collation and for the production of a critical apparatus. This approach prioritizes editorial opinion and takes no notice of the documentary aspects of the text.

The encoding system developed for New Testament projects was a useful place to start when I was devising the Commedia Project's transcription and encoding guidelines. Its main drawback was that while these projects used the <rdg> elements within <app> to give the variant states of the text, they gave no information about the text of the document.

In the preceding sentences, I have introduced a distinction between "the text of the document" and the "variant states of the text". Because this distinction is so

[^95]crucial to what follows, and may be unfamiliar to the reader, it needs further explanation. In this article, I use the phrase the "text of the document" to refer to the sequence of marks present in the document, independently of whether these represent a complete, meaningful text. That is: the reader sees a sequence of letters, occurring in various places in relation to each other (perhaps between the lines or within the margins) and carrying various markings (perhaps underdottings or strikethroughs). These make up what I here refer to as the text of the document.

The reader understands the marks present in the text of the document as meaningful and constructs one or more specific senses from them. Where more than one sense can be constructed from the text of the document, I refer to these as the "variant states of the text", or as the "constructed" texts. I deliberately avoid the use of the phrase "the text of the work," as this is a completely different concept that refers specifically to an abstract concept of "the work." (Cf. Tanselle, The Rationale of Textual Criticism.) In our system, at each point of variation the text of the document at that point is encoded in a <rdg type="lit"> element. The variant texts, the constructed texts, are encoded within <rdg type="orig"> <rdg type="c1"> <rdg type="c2"> elements.

Over the course of many conversations with the New Testament scholars, we learnt that for them, the variant states of the text were of crucial importance. However, how those variant states were actually represented in the document the text of the document - was of much less interest. Therefore, at places of variation in the manuscript they commonly encoded the variant states of the text, but said nothing about how the text of the document actually appeared at that point. Thus, in the Sinaiticus example above the alternative readings $\varepsilon \delta เ \delta \alpha \xi \varepsilon v$ and $\varepsilon \delta \iota \delta \alpha c \kappa \varepsilon v$ are recorded, giving the variant states of the text at this point. However, there is no attempt to record exactly how the text appears on the page (with two letters CK written in a different hand above the $\xi$ ): that is, the text of the document.

From the first, the Commedia Project determined that it was crucial to record the text of the document as well as the variant states of the text. While the scholarly community tends to accept editorial opinion as fact, it does not follow that editors' interpretations are always correct. Hence, this project (and others in which I was involved) felt it important to record the text of the document as well as the variant states of the document. To do this, we introduced an additional <rdg> element with a different attribute, one that would attempt to make explicit the exact sequence of meaningful letters and markings in the document. This was another $<\mathrm{rdg}>$ element, but with the type attribute set to "lit": <rdg type="lit">. Unlike the other <rdg> elements within <app>, <rdg type="lit"> would contain the closest representation of the "text of the document": the sequence of meaningful marks on the original document. Its objective was to aid the reader in the interpretation of a manuscript and to allow the possibility of a different interpretation from that of the editor.

In its first incarnation, what came to be affectionately called by the Commedia transcribers the "literal tag" or "lit tag" included the standard TEI elements <add> and <del>. However, it was decided that these elements are inappropriate within a representation of the text of the document. ${ }^{164}$ The <add> and <del> elements combine a statement about the variant states of the text (that is, about the text before and after the change) and about the text of the document (that is, about the letters and marks present on the page). "Addition" and "deletion" are not something that happen in a document, but are better described as the human interpretation of the text of the document, based on the reader's understanding of the methods used by authors and transcribers to modify text. ${ }^{165}$

[^96]Certain acts in any writing process are understood by readers as deletions. A crossed out text is understood as deleted and so is an erased one or a scraped one. Underdotting can be understood as deletion, or the text might have a tiny "vacat" written around it. Occasionally a particular word is understood as deleted because it is clear that it is meant to be replaced by a different one, even when there are no signs to mark this deletion at all. ${ }^{166}$ These acts are all interpretive, as the predictable behaviour of someone (an editor, a transcriber or a reader) who frequently encounters those signs.

Consider the following example from ms. Riccardiana 1005, Inf. iii 9: 011150

Our first attempt to encode this, before we came to see that the <add> and <del> elements were inappropriate when representing the text of the document, was:

```
<app>
<rdg type="orig">dura</rdg>
<rdg type="c1">duro</rdg>
<rdg type="lit"><del rend="underdot">dura</del><add>duro</add><rdg>
</app>
```

The dot under the letter "a" marks a place in which a purposeful alteration has been introduced. Here, our original XML-TEI expression of this uses both <add> and <del>. What we see in the image of the manuscript is a word "durao" in which the letter " $a$ " has been underdotted. However, when we first translated this into the newly developed system we realized that to say that the word "dura" has been deleted would not be correct, and even less correct is to say that "duro" has been added.

[^97]What happens on the page is not that the whole word "dura" has been deleted, and the whole word "duro" added: only one letter is changed, in fact. So, we considered an alternative encoding, which would show that the changes affected only one letter, thus:
<rdg type="lit">dur<del rend="underdot">a</del><add>0</add><rdg>
This appears more specific, and hence more satisfactory: only the letter "a" is underdotted and only the " o " added. But it is misleading to use the terms deletion and addition here. Firstly, the " o " is not added at all. Its appearance following the " a " is just the continuation of the normal writing process. It is as much a distortion to say that "o" is here added as to say that when writing "the", one first writes " t ", then adds " h " and "e". Second: the statement that the underdotting of " a " is a deletion is not a statement about what actually appears in the manuscript. The "a" is actually not touched at all: simply, a dot is placed under it. The interpretation, that this is a deletion, is a statement about the variant states of the text, not about the text of the document.

Those familiar with medieval manuscripts, scribes and their writing practices immediately recognize the dot under the " a " as an expunction mark. Thus they read this text as follows: the scribe wrote "dura," realized that this was a mistake and corrected the reading to "duro." This train of thought is so ingrained that readers do not perceive it as a series of separate states. It takes only a fraction of a second to think and realize what has happened. But what occurs are indeed two distinct activities. Firstly, the reader realizes that there is a set of marks on the page that are text. Secondly, the reader constructs meaning out of those marks on the page. The first is an act combining perception and interpretation, the second is an act purely of interpretation. It was this reading that brought into question the idea of using the <add> and <del> elements. Both <add> and <del> confound the representation of the text of the document with the representation of the variant states of the text constructed by the reader.

Up to this moment of realization, the encoding of projects similar to the Commedia Project, such as the Canterbury Tales Project, attempted to present simultaneously both "what is in the document" as a series of additions or deletions, and "what is in the text", as a series of distinct readings. This arose from the misunderstanding of <add> and <del> as elements that could objectively describe the text of the document. But this distinction, between the text of the document and the text that is constructed by the reader/editor, only became evident when we first tried to implement <rdg type="lit">. What seems obvious now (the distinction between the text of the document and the text or variant texts as the editor perceives it to be) required months of discussion with Klaus Wachtel (from the Institute for New Testament Research in Münster) about the transcription of corrections of the manuscripts of the Greek New Testament, before new ideas about how to encode these different reading stages started to emerge. These discussions were the base of the encoding system developed for the Commedia Project, used in this DVD-ROM and web site and now implemented in other projects.

The system I devised includes a new set of parameters for the elements that should be allowed within the <rdg> element with attribute type="lit." Only the visible, physical features of the text of the document are represented here. In the case of the example from the Riccardiana manuscript, discussed above, the resulting encoding is:

```
<app>
<rdg type="orig">dura</rdg>
<rdg type="c1">duro</rdg>
<rdg type="lit"> dur<hi rend="ud">a</hi>o</rdg>
</app>
```

Encoded in this manner, the editorial judgement, in the form of the editor's construction of the variant states of the text, is clearly articulated in <rdg type="orig"> and <rdg type="c1">, while in <rdg type="lit">, we find a more
neutral expression of the text of the document. Notice that in the above example, only the letter "a" requires further encoding in the form of <hi rend="ud"> to indicate the expunction mark. The " 0 ", which is the result of the scribe continuing to write as normal, requires no special encoding and neither do the first three letters in the word ("d," "u," "r"), which are not affected by the change.

The main goal of this new transcription system is to present a clear distinction between the text of the document (i.e. what goes in the lit tag: the exact series of marks upon the page) and how the editor (or the transcriber) interprets the different stages of development of the text (i.e. our understanding of the text as originally written and then altered). These two levels must always be clearly distinguished. Although both of them are interpretive, they are interpretive in different ways and they serve different purposes. The first attempts to show the letters and marks which appear to be present in a particular document and the second offers an opinion which explains what the editor thinks is the text or texts which can be constructed out of those marks. Both are "texts": but they are different kinds of texts. The text of the document is the sequence of letters and meaningful marks the reader sees on the page. From this, the reader constructs one or more texts. Usually, where letters follow one another into words in an uninterrupted sequence, the text of the document and the constructed text appear identical. But in cases such as this "dura/o" example, a distinct act of interpretation is required to construct the variant texts from the text of the document. Our division between recording the text of the document (in <rdg type="lit">) and recording the variant texts (in the other <rdg> elements grouped within the <app> element) makes this distinction explicit.

Thus, the Commedia Project encoding system aims both to represent the different stages of variation in the text and to give a concrete form to its expression. When a transcriber finds a "place of variation" in the manuscript, he or she can use the <app> element. This contains two main components:
(a) a sequence of two or more <rdg> elements giving the editor's interpretation of the variant states of the text, typically with <rdg type="orig">, the original reading ${ }^{167}$ followed by $\left\langle r d g\right.$ type $=" c 1 ">.{ }^{168}$ If there are more than two stages in a correction, for example, in the case of having more than one corrector, these stages are presented in what is deemed to be their successive order;
(b) <rdg type="lit">, what "literally" is in the witness; that is the text of the document.

Although the intricacy of this system can be perceived as a disadvantage, the sophistication of the final results is well worth the effort. In the final display, we can present the different scribal hand, or stages of correction by the same scribe at different points in time. This is particularly important because one of the witnesses included in this web site is Luca Martini's copy of the Aldine edition of the Commedia. Martini corrected his copy against a manuscript that has since been lost. Martini's corrections become accessible thanks to the separation of the original text from the corrected version as expressed with the different <rdg type="orig"> and <rdg type="c2"> elements. The system also opens an important avenue for recording the creative process of an author, as is done in genetic editions.

I will now consider some practical cases in which this encoding system is particularly effective. For example, the Società Dantesca example offered above is rendered as follows in the Commedia Project:


[^98]```
<app>
<rdg type="orig">di</rdg>
<rdg type="c1">del</rdg>
<rdg type="lit">di<s type="il">el</s></rdg>
</app>
```

In this example, the original reading is not altered at all; instead, the letters "el" are written between the lines in a smaller size and in what today seems a fainter ink. The transcription offers a history of what has happened here: that the main reading (the original reading in this witness) was, at some point, deemed to be incorrect and a correction in the form of an interlinear addition has been supplied. The encoding here distinguishes clearly two kinds of editorial activity. First, within the first two <rdg> elements we interpret the different texts which can be extracted from the manuscript at this point: thus "di", seen as the "original" reading, and "del", seen as the "c1" reading. It is an editorial decision to assume that the scribe meant "del" to replace "di." ${ }^{169}$ This is expressed in the first two <rdg> elements, with the "type" attribute used to declare the agent responsible for these readings in the manuscript.

Second, within the <rdg type="lit"> element, we show what we see as the text of the document. Here, the "i" in "di" has not been assigned any specific encoding by the transcriber because it was not deleted by the scribe. Literally the manuscript reads "diel", with the "el" written above the "di". The <rdg type="lit"> element attempts to present what, seemingly, the manuscript shows: that the word "di" was written and that, at a somewhat later stage, the letters "el" were added. One could take this further and perhaps offer a theory about whether the corrections came from a manuscript representative of a different part of the textual tradition.

[^99]A type of correction commonly found among the witnesses of the Commedia transcribed and encoded for this project is the rewriting of a letter. The system considers the rewriting of one or more characters as a particular kind of replacement. In this edition, all replacements are encoded using the <s> element
and placed within the <rdg> element. For example:

<app>
<rdg type="orig">sicuro</rdg>
<rdg type="c1">maturo</rdg>
<rdg type="lit"><s type="rp"><s type="cow">si</s>m</s><s type="il">a</s><s type="rp"><s
type="cow">c</s>t</s>uro</rdg>
</app>

As the first two <rdg> elements show, the editor believes the scribe originally wrote "sicuro" and changed this to "maturo." Here we have two examples of the scribe rewriting the original character. The first character of the word "sicuro", the letter " $s$ ", is overwritten to appear as the first two minims of the letter "m" (notice that the minim that represents the letter " $i$ " does not suffer any alteration and yet its meaning changes because of its new context). The letter "a" appears above the word and it is reasonable to think that it was added during the revision of the text. A second instance of a replacement by overwriting is the letter " c " which has been transformed into a "t."

The reason why the attribute of the original <s> element is type="cow" has to do with the ambiguity of the word "rewritten." Does the word "rewritten" refer to what has been overwritten (as in "the letter c is overwritten by a t "), or to the overwriting (as in "the letter $t$ overwrites the c")? I decided to embrace the

Saussurean idea of the arbitrariness of the sign, by using a completely random word to refer to the first state of the characters in a particular witness. ${ }^{170}$

The reasons for separating a letter into its smallest parts become clearer the more one looks at the scribal treatment of these. Consider this example:

The project encoded this as:

```
<app>
<rdg type="orig">prima</rdg>
<rdg type="c1">priua</rdg>
<rdg type="lit">pri<s type="rp"><s type="cow">m</s>u</s>a</rdg>
</app>
```

The problem with this encoding is that it suggests that the letter " $m$ " was overwritten and replaced by the letter "u. "We can all agree that the first reading

[^100]in this document was "prima" and that it now reads "priua." However, it is much more difficult to agree that this is a literal description of the manuscript. ${ }^{171}$

We have found that this encoding system presents several advantages. Firstly, the transcribers can defer interpretation of the stages of meaning, since the element <rdg type="lit"> can be transcribed independently of <rdg type="orig"> and <rdg type="c1">. This also allows the editor of a publication to make a final decision as to what happened at each individual place of variation. Secondly, the use of <rdg type="lit"> allows us to present a closer reconstruction of what actually appears in a document on the computer screen. Thirdly, the other components of the element <app> (<rdg type="orig">, <rdg type="c1">, <rdg type="c2">, <rdg type="c3">, etc.) can be collated separately from the rest of the text. The separate collation of multiple readings in a witness can be most useful when a scribe used a witness of different affiliation to correct his copy. In such cases, separate collation allows the isolation of readings which originated in different manuscripts and which could hint at distinct affiliations in a single text. Separate collation might also be of help in cases in which conflation has occurred because a manuscript is corrected with readings from another one from a different branch of the textual tradition.

[^101]Currently, a version of the encoding system of the Commedia Project has also been implemented for use by the Canterbury Tales Project and by the Cancioneros Project. It has not yet been used in textual traditions where authorial variation is present, and the advantages of this system when applied to authorial manuscripts are yet to be fully explored and exploited. ${ }^{172}$ It should work as efficiently to distinguish different authorial versions of a particular text, which in turn should translate into an easier reconstruction of these versions

[^102]and allow the distinction and separate reconstruction of different authorial stages of composition, thus permitting the creation of genetic editions.

Barbara Bordalejo
$4^{\text {th }}$ April 2010

## The Encodings

This section gives both the Collate-style encoding used by the transcribers, and the XML encoding into which this was translated, and which is used in this publication.

## Position

Interlinear: Collate [i]od[/i]; XML <s type="il"></s>

sii ${ }^{\text {lod/ }}$ ombra Inf. i 66 LauSC

Right margin: Collate [rm][/rm]; XML <s type="rm"></s>


Left margin: Collate $[\mathrm{lm}][/ \mathrm{lm}] ; \mathrm{XML}$ <s type="lm"></s>

| centura | $33 \quad$ Da la $\leftarrow$ in su Inf. x 33 Rb |
| :--- | :--- | :--- |

Top margin: Collate $[\mathrm{tm}][/ \mathrm{tm}] ; \mathrm{XML}$ <s type="tm"></s>

Bottom margin: Collate [bm][/bm]; XML <s type="tm"></s


## $\underline{\text { I uolsi }} \downarrow$ gli occhi $\underline{i}^{\downarrow} \underline{e ~} 1^{\downarrow} \underline{\text { buon Virgilio }} \downarrow$ al mentre $\downarrow$

Io mossi gl occhi el buon Maestro al men tre

A letter or word added within the line by cramming between words or at either end of the line but attached to it: Collate [pl] [/pl]; XML <hi rend="cr"></hi>

## Nardayin Guardali/ in

$$
\text { Inf. i } 16 \text { Mart }
$$

## Scribal Deletion

Underdotted, or erased by dots within the letter or dots enclosing the word:
Collate [ud][/ud]; XML <hi rend="ud"></hi> quale Inf. i 55 LauSC

Underlined: Collate [ul][/ul]; XML <hi rend="ul"></hi>

parte
Inf. vii 82 Mart
Cancelled by a stroke through the letter or the word: Collate [st][/st]; XML <hi rend="strike"></hi>

que
Inf. v 78 Mar

Erased: Collate [er][/er]; XML <hi rend="er"></hi>

## ( 111 cí di una

 .. Inf. i 49 LauSC
## Problematic Readings

Unreadable, including words or letters missing because of physical damage to the manuscript: Collate [unr] $\mathrm{xxx}^{[/ \mathrm{unr}]}$ the number of x's corresponds to the number of letters that could have been present); XML <gap extent="2"/> (the value of the extent attribute corresponds to the number of letters that could have been present)

Doubtful or uncertain readings: Collate [dub][/dub]; XML <unclear></unclear>
ongne
Inf. iii 9 Triv

Space left deliberately by the copyist, either because he is unsure of the reading or because there is a blank space in his exemplar: Collate [sp]xxx[/sp] (the number of x's corresponds to the number of letters the space could accommodate); XML <space dim="h" extent="3"/> (the value of the extent attribute corresponds to the number of letters the space could accommodate)
pero che a me uenian
Par. xiv 125 Ham

Elements can be used together, thus for an erased reading which is unreadable: Collate [er][unr] xxx[/unr][/er] (the number of x's corresponds to the number of indecipherable letters); XML <hi rend="er"><gap extent="3"/></hi> (the value of the extent attribute corresponds to the number of indecipherable letters)

## Glosses and Alternative readings

During transcription, these were encoded as notes within Collate: thus the gloss "Luxuria"in the right margin of Ham at Inf. i 32 was recorded as "\{line 32: gloss: Luxuria\}". Later, these were converted into XML <note> elements, kept apart from the transcripts, thus:

```
<note id="Gl-Note-IN-1-32-Ham" type="gloss" rend="rm">Luxuria</note>
```

The value of the "id" attribute connects this to line 32 of Canto 1 of Inferno in Ham; the value of the "rend" attribute places the gloss in the right margin. The values "lm" "tm" "bm" for the "rend" attribute place the gloss in the left, top and bottom margins.

Alternative readings, as opposed to glosses, are encoded as part of the running text in the transcripts, together with information as to the location of the alternative reading: Collate $[\mathrm{al}][\mathrm{rm}][/ \mathrm{rm}][/ \mathrm{al}]$ (for an alternative reading in the right margin); XML <s type="al"><s type="rm"></s></s>

## 

## li dislego $\rightarrow$

li dispiego
Purg. xxv 31 LauSC

## Substitution of one Reading for Another

Replacement when the original reading is still visible and legible: Collate [rp][cow]abc[/cow]def[/rp]; XML <s type="rp"><s type="cow">abc</s>def<> ( $a b c$ is the original reading, def is the reading which takes its place)
eg. LauSC Inf. ii 38


Replacement over an erasure where the original reading cannot be deciphered: Collate [rp][er] [unr] $\left.\mathrm{xxx}^{[/ \mathrm{unr}}\right]_{[/ \mathrm{er}]_{\mathrm{abc}}[/ \mathrm{rp}] \text { (the number of x's indicating the }}$ number of illegible letters, abc is the reading which replaces it); XML <s type="rp"><hi rend="er"><gap extent="3"/></hi>abc</s> (the extent attribute indicates the number of illegible letters; abc is the reading which replaces it)
eg. Rb Purg. xxxii 5

## non <br> [.....]celar cossi

A word or phrase added in a space left by the copyist: Collate [rp][sp]xxxx[/sp]abc[/rp] (the number of x's indicates the number of letters the space could accommodate, abc is the added word or phrase; XML <hi rend="inspace">abc</hi> (abc is the word or phrase written in the space). eg. Ash Purg. xi 25


Cosi a sse e noi [\buona Ramongna/]

## Aspects of Layout

Superscript: Collate [sup][/sup]; XML <hi rend="sup"></hi>
Line break: Collate and XML \&lb;

eg. Par. i 2 LauSC

## pez livinuczoo penctiti <br> ct 1 trfplanで,

## per 1 uniuerso penetra et resplende

Line break with concatenation marker to indicate that a word is split across the line break: Collate and XML \& lb;=
eg. Purg. i 1 Triv


# PER COR <br> RER MI <br> GLOR <br> ACQUA <br> ALÇA LE <br> VELE 

Catchword: Collate $\{/ \mathrm{cw} /\}$ (that is: within a Collate "note" structure, typed as a "cw"); XML <note type="cw"></note>


102 et torni a te da tucti ripercosso

## Ben che nel

Triv Par. ii 102/103

A signature: Collate $\{/ \mathrm{sg} /\}$ (that is: within a Collate "note" structure, typed as a "sg"); XML <note type="sg"></note>

## si'chél pic fermo 'fempróera'l piu baffo.

Mart Inf. i 30
A running head: Collate $\{/ \mathrm{rh} /\}$ (that is: within a Collate "note" structure, typed as a "rh"); XML <note type="rh"></note>

## INF. <br> E ecto quafi al cominaar delferta

Mart Inf. i 31

Wrapped line below: Collate and XML \&wlb;


Qute (The et dilor pe个ne
Inf. xviii rubric Ham

Wrapped line above: Collate and XML \&wla;


3 uenimmo sopra piu crudele $\downarrow$ stipa

Inf. xi 3 Ham

Expansion of an abbreviated form, used more frequently than any other tag in the Commedia project: Collate [exp] [/exp]; XML <expan></expan>.

et Inf. i 82 Triv


1 grande
Inf. i 83 Triv

## Appendix D: Making the second edition

## Peter Robinson

Prue Shaw's Dante Alighieri Commedia: A Digital Edition was published in 2010. By 2020, this edition was showing its age. The technical advances in computing between 2010 and 2020 alone rendered a new edition desirable. Further, there were deficiencies in the first edition which mandated a new edition. The greatest deficiency was that the first edition was, effectively, available only on DVD (a full web version, with all images available on-line, was contemplated but never achieved.) In 2010 DVD drives were common-place, with almost every new computer coming with a DVD drive as standard. By 2020, DVD drives had disappeared, as faster networks and the advance of cloud computing made them obsolete. In the same period, the rise of mobile computing, with over half of internet accesses coming from mobile devices, made the 2010 interface unattractive and impractical.

The seventh centenary of Dante's death, coming in 2021, spurred the making of a second edition. Preliminary discussions between Prue Shaw and the joint publishers of the first edition, SISMEL and Scholarly Digital Editions - Lino Leonardi (SISMEL) and myself (SDE) - brought rapid agreement: we would create a second edition of Shaw's work, and publish it on the web free to all, in the most attractive form we could devise, in time for the centenary. Shaw, Leonardi and myself were joined in an informal ad hoc committee to oversee the creation of the second edition by David Robey, a Dante scholar with long experience in digital humanities, and Emiliano Degl'Innocenti, on behalf of the Dariah.it consortium, which would host the completed edition. I undertook to make the second edition, building on the materials developed for the first edition, with additions and corrections supplied by Shaw.

The aims of the second edition can be formulated as follows. The second edition should be:

1. Open. Everyone should be able to access every part, free of any restriction. A key element here was the agreement of all libraries to permit free online access to images of their manuscripts.
2. Accessible. The edition should run on the widest possible range of devices, from mobile phone to massive displays. Anyone with an internet browser, running on any device, should be able to see the edition and use all its functions.
3. Fast and responsive. No part of the edition should take more than 1.5 seconds (ideally, one second or less) to load. Some parts of the first edition (loading of the collation views, VBase searches) could take 30 seconds or more to load; in the second edition, these actions are nearly instantaneous. Where possible, actions that required a click in the first edition (sometimes several clicks) would be prompted just by the mouse hovering over a word. For example, in the first edition the collation at any one word in any transcript could be seen by clicking on the word, whereupon the collation would appear at the base of the screen. In the second edition, the collation appears when the mouse hovers over the word, in a pop-up window next to the word. Similarly, in the first edition one could access the variant map for any variant by clicking on a link in the collation view, whereupon the variant map would appear in a new window. In the second edition, moving the mouse over any variant has the variant map appear in a pop-up window next to the variant.
4. Navigable. A reader should be able to reach most parts of the edition with just one click, and every part with just two, after loading. That is: the reader can go straight to the collation and compare views in just one click, approximately 2 seconds after loading. Compare to the first edition, where finding Variant Maps or the original spelling collation required
selecting "word collation" from the popup menu (which meant you had to know it was there, under "Image/Text"), and then clicking through on Variant Map or on "show original spelling", with each click taking up to ten seconds to react. In the first edition, the reader had to choose each one of canticle, canto, line, manuscript and view, and only then click on "Go": typically five clicks, and then wait up to ten seconds (or more) for the edition to load. In the second edition the reader can go to the view with one or two clicks, and the view appears almost instantly.
5. Explicit and transparent. It should be instantly clear to the reader what is being presented. For example: showing the transcripts with marginalia, etc, appearing in the margins, so that top, bottom, left and right margin material appears in the top, bottom, left and right margins should be much easier for readers to grasp.
6. Declarative. The second edition aims to bring more directly to the reader aspects which were, to some degree, hidden or less accessible in the first edition. In particular, the VBase function is now accessible from the menu bar at the top of every page, whereas previously it was somewhat buried at the end of the editorial materials (to find it you had to know where to look). Likewise the Variant Maps are accessible as pop-ups directly viewable from the collation. As the Variant Maps reflect our account of the relationships at every point, and VBase provides near instant answers to complex questions about manuscript relationships, together affirming the premise of the edition that it is possible to reach an editorially-useful understanding of the relations among the manuscripts, it seemed important to give them high visibility.
7. Sustainable. The second edition must not depend on bespoke or narrowly-maintained software applications (such as the Anastasia software deployed for the first edition). Fundamental data files must be kept in well-known and widely-supported formats, and standard software
tools must be used to present all parts of the edition. See the "Technical description" below.

With one exception, the second edition retains all the facilities of the first edition. The exception is the "Variant Group Profile" feature in the first edition. Interested readers are welcome to use that feature from the first edition, now also available free online at http://www.sd-editions.com/AnaAdditional/commediaonline/home.html.
This tool was very rarely used. In turn, a new tool is added to VBase: the ability to find not just "variants" (e.g. all variants found in Ash and Ham) but "Variant Sites" (e.g. all places where Ash and Ham agree in one reading, and Rb and Urb agree in another reading). Further, the second edition adds a view not present in the first edition, the "Compare" view. This view permits line-by-line comparison of any combination of witnesses, up to all nine at once, with variants on each line highlighted by color across the witnesses, with the witnesses scrolling together as needed.

See Shaw's Preface to the second edition 2021 for an account of differences in content between the two editions.

## Technical description of the second edition: the data files

The first edition used a complex set of procedures to convert original transcripts and collations into a single digital object. These procedures were based around the Anastasia publishing system, which made easy one of the most difficult aspects of preparing a digital edition incorporating manuscript images and transcriptions: presenting the text both canto-by-canto and page-by-page. In essence, Anastasia stored the source XML files in a purpose-built database, and served them out as HTML ready for display. My first thought was to use Anastasia's successor, Textual Communities, to achieve the same purpose. However, it quickly became clear that this was not a good path for the second edition, for two reasons. Firstly, there was a performance issue. Every user call would require network access to the underlying Textual Communities database,
a database lookup, and then network transport back to the browser. Indeed, complex tasks, typical of shifting from one view to another, required a series of such calls. Although the database was very fast, network latency could make these lengthy operations. Secondly, and decisively, this solution would make the new edition hostage to the continuing existence of and support for the Textual Communities system.

Instead, the second edition is built on a collection of data files in wellestablished formats held on a single server. These files are served directly to the reader's browser from the server, with all the manipulations of the data into what the reader sees on the screen handled by standard software tools either native to the browser or loaded from the server. This reduces the load on the server, and the power of modern computers and browsers ensures excellent performance. In the first edition, a complex VBase search takes around seven seconds; in the second edition, the results appear as soon as the reader hits the search button.

The spine and vital organs of the edition are XML-encoded (Text Encoding Initiative compliant) files of the complete transcripts and collation, canto by canto, of all 14233 lines of the Commedia in seven manuscripts and two editions. By a chance that would have delighted Dante, there are exactly one thousand such files. These files are held in one hundred folders, each folder representing one of the one hundred cantos of Dante's poem. The filenames for the ten files in each folder are identical, for every canto:

- Ash.xml, Ham.xml, LauSC.xml, Mart.xml, Rb.xml, Triv.xml and Urb.xml: the seven manuscripts (actually a print edition in the case of Mart, with Martini's hand-written annotations) transcribed canto by canto;
- FS.xml and PET.xml: the full text of two editions included in the edition, those of Sanguineti and Petrocchi;
- DCregcollapp.xml: the full word-by-word collation of the seven witnesses and two editions.

Typically, each transcript file is around 25 kb ; each collation file around 450 kb . Most views in the edition require loading of all the transcript files, the editions, and the collation file. Where a page view spans two cantos, the files for both cantos are loaded. The one hundred folders, one for each canto, are contained in three folders: one for Inferno (named IN) holding 34 canto folders; one for Purgatorio (named PU) holding 33 canto folders; one for Paradiso (named PA) holding 33 canto folders. The whole collection is held within a folder named "transcripts" at the root of the edition. Thus, https://www.dantecommedia.it/transcripts/IN/1/Triv.xml will load the transcription of the Trivulziano manuscript for Inferno canto 1. Three further XML files, glosses.xml, allnotes.xml and metre.xml, all held in the "notes" folder at the edition root, contain manuscript glosses, editorial notes, and David Robey's metrical analysis.

These files are supplemented by files containing JSON-formatted data. These files offer various indices into the data enabling rapid data access and handling which another implementaton would have provided through a database. These files are all held in the "js" folder, at the edition root, as follows:

- Ash.js, Ham.js, Lausc.js, Mart.js. Rb.js, Triv.js, Urb.js: index the content of each manuscript page, identifying exactly what text is on each page;
- cantoLines.js: gives the number of lines in each canto, and the number of cantos in each canticle;
- Ham.manifest.json and Urbmfest.js: IIIF manifests for the images of Ham and Urb. See next section.
- VBase.json: the entire apparatus for the whole poem, represented in JSON and optimized for rapid searching using VBase. As an indicator of the relative efficiency of JSON and XML formats: the one hundred XML
files containing the apparatus occupy around 45 megabytes; the single JSON file representing the same data occupies 11.5 megabytes.

All of these files are directly accessible from the Commedia server. Readers are free to download these files and use them as they wish, subject to the copyright considerations outlined at Copyright Statements, pp. 16-17.

Technical description of the second edition: the software
All the information in the four principal views of this edition (transcription, collation, compare and VBase) is embedded in the one thousand XML data files. However, on their own, the files are a mess of angle-brackets and incomprehensible labels, through which fragments of Dante's text peep like malefactors contemplating a prison break. The language of the web is HTML, not XML. It is HTML which controls what appears on the screen, where and how. To be read by a human being, the XML must be converted to HTML.

In the first edition, the XML was converted to HTML on the server, as part of the Anastasia publishing system. For this edition, the conversion happens in the user's browser. That is: the reader chooses to see the transcription of canto one of Inferno as it appears on the first page of manuscript Ash. The XML files relating to that transcription are fetched from the server, and then converted in the reader's browser to HTML ready for display. This edition is what is known as a "single page" site: that is, every page the viewer sees on the site has the address www.dantecommedia.it /index.html. This page defaults to the transcript view of the first page of the first canto of Inferno in manuscript Ash. Other pages and other views are invoked by what is termed a "query string": a set of name/value parameters which mandate what part of the Commedia is to be displayed and how. Thus:
www.dantecommedia.it/index.html?view=collation\&ms=Mart\&canticle=1\&ca nto=1\&line=1\&spelling=false\&metre=false
summons the collation view of Canticle 1 (Inferno), canto 1 , line 1 , not showing original spellings and metre.

The fundamental engine of the transformation is the programming language Javascript. Javascript is built into every browser and is commonly used to transform a stream of data into HTML. However, the name "Javascript" covers many things besides the core programming language: one may think of it as a shorthand for a mix of applications, libraries, languages and standards, together forming a processing chain which takes in raw data and converts it into what the reader sees: Dante's words on a luminous screen. In this edition, this chain is composed of a series of tools (some of them embodied in single files, some in complex libraries), as follows:

1. Fetched from a Google public server at run time: the jQuery library. This library provides a host of cross-browser functions for data transformation, additional to those in the core Javascript embedded in the browser. The rationale for accessing this from a public server is that updates to the code are automatically available to the edition. jQuery has particularly powerful tools for handling XML.
2. In the folder "js" at the root level: commedia2.js, VBase.js and compare.js manage the four base views of the edition: the transcript and collation views by commedia2.js, which also handles images and base user interactions; VBase and compare views by the other two files.
3. In the folder " js " at the root level: async.js holds the Javascript Async library (https://caolan.github.io/async/v3/). This library manages all communications with the server, ensuring that the Javascript components all have the data they need when they need it. Split.js manages the split between the screens (vertical/horizontal) in the transcript and collation views. Clay.js manages resize events within the display. Pallette.js provides optimal contrasting color sets for the

Compare view and for display of Variant Maps in the Collation and VBase views.
4. In the folder "dw_tooltips" at the root level: files in this folder implement the 'pop-ups' used throughout the edition to show extra information about something on the screen. Some examples are: the collation box which appears when you move the mouse (or finger-press) on any word in the transcript view; the Variant Maps which appear above every variant reading in the collation and compare views; the information which appears when you hover over a manuscript name. This library is very old in Web terms (2008!), but remains the most efficient system known to me for organizing pop-up displays.
5. In the folder "less" at the root level: Commedia2.less brings together style-sheet declarations, using the Cascading Style Sheet standard (CSS). These declarations determine every aspect of the appearance of the edition: the font used, how headings are marked, how complex layouts of columns, top, left, right and bottom margins are set up. These declarations can be very complex, as can be seen in the transcript views, where CSS is used to position page elements precisely. Particularly, this edition uses the Flexbox CSS library to manage complex displays, and to achieve graceful results as device windows grow, shrink and rotate. The "less" folder also contains a Web version of Peter Baker's Junicode font, loaded at runtime.

In addition to the XML text, the edition offers over 2000 manuscript images of the seven manuscripts. All images in this edition are held as International Image Interoperability Framework structures (IIIF), viewed with OpenSeaDragon. OpenSeaDragon is one of several well-supported tools which permit fast display of high-quality IIIF images. A core feature of IIIF is uniform handling of images regardless of server, browser and computer. In Commedia 2 five of the seven manuscript witnesses have images served from the dantecommedia server, while two institutions (Ham and Urb) serve images from their own server. Further,
the Berlin Staatsbibliothek has licensed all their IIIF images, including those of Ham, as free cultural objects and so available for re-use and re-publication without restriction. All other images in the edition, including those from Urb, are subject to copyright restrictions: licensing use of the images for private research but enabling non-commercial use only.

## VIII. Bibliography 2010

This bibliography is selective. It includes all works cited in the Introduction, and other books and articles of particular interest and relevance.

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[^0]:    ${ }^{1}$ Other vernacular ms. traditions are less rich: for example, 80 or so copies survive of Chaucer's Canterbury Tales. Marcella Roddewig in her census of Commedia manuscripts lists 844 items: Dante Alighieri. Die göttliche Komödie: vergleichende Bestandsaufnabme der CommediaHandschriften, Stuttgart, Hiersemann Verlag, 1984.
    ${ }^{2}$ A similar approach had been suggested many years before by Carlo Negroni in Sul testo della Divina Commedia. Discorso Accademico, Torino, Appresso Carlo Clausen Libraio della R. Accademia delle Scienze, 1890, but Negroni's argument was based on two fallacious assumptions: that mss. copied before 1350 were free of textual degradation, and that once these mss. had been identified a simple numerical majority of witnesses would guarantee the authenticity of the text at any given point.

[^1]:    ${ }^{3}$ Dante Alighieri, La Commedia secondo l’antica vulgata, a cura di Giorgio Petrocchi («Le opere di Dante Alighieri. Edizione Nazionale a cura della Società Dantesca Italiana», vol. VII), 4 vols., Milano 1966-67); henceforth in the text and notes vol. I Introduzione, vols. I-IV EN.
    ${ }^{4}$ To: Toledo, Biblioteca del Cabildo, ms. 1046.
    Ri: Florence, Biblioteca Riccardiana, ms. 1035.
    Chig: Vatican City, Biblioteca Apostolica Vaticana, ms. L VI 213.
    The ms. sigils used here and in what follows are those used by Petrocchi in the EN. 1357 is the earliest date suggested by scholars for To, but Petrocchi believed it to date from at least 10 years later (Antica tradizione 13): in his view there is thus a substantial chronological break between the earlier tradition and the Boccaccio editio.
    ${ }^{5}$ Vat: Biblioteca Apostolica Vaticana, ms. Vaticano latino 3199.
    We do not know for certain if Boccaccio ordered one or two copies of the poem; he may have sent this copy to Petrarch and himself copied from a 'manoscritto gemello' obtained from the same source at the same time; see Petrocchi Introduzione 89-90; Pomaro Codicologia dantesca 364-65.

[^2]:    ${ }^{6}$ For a list of variants reflecting Boccaccio's editorial activity, see Petrocchi Introduzione 20-40.
    Petrocchi summarises the situation: 'To si distingue per una maggiore osservanza delle lezioni di Vat; con Ri si accentua il processo di distacco, che trova la sua soluzione più libera nella veste di Chig.'
    ${ }^{7}$ La: Piacenza, Biblioteca Comunale Passerini Landi, ms. 190.
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    ${ }^{8}$ Petrocchi, Radiografia del Landiano, SD XXXV (1958), 5-27. The corrections were made c.1350; see Petrocchi Introduzione 71.

[^3]:    ${ }^{9}$ Mart: Milan, Biblioteca Nazionale Braidense, Aldina AP XVI 25.
    ${ }^{10}$ Edward Moore, Contributions to the textual criticism of the Divina Commedia, Cambridge University Press 1889, vi; Petrocchi Introduzione 15. Cfr. Petrocchi Proposte 340: ‘L’alterazione del testo della Commedia risale ... ai primissimi amanuensi'; ‘il singolo amanuense dovè lavorare, nella più parte dei casi, su diversi testi, non su un solo'; and Introduzione 365-66: ' ''inquinamento del testo della Commedia ebbe ad iniziarsi sùbito dopo la morte del poeta (per le prime due cantiche anche a partire dal 1316-1317).'
    ${ }^{11}$ Sa: la Spezia, Archivio Notarile Distrettuale, Frammenti del Purgatorio e del Paradiso. The other fragments Petrocchi examined, identified with the sigils Bo and Mo, are not included in the stemma:
    Bo: Bologna, Archivio di Stato, Frammenti di divulgazione della Commedia.
    Mo: Modena, Archivio di Stato e Biblioteca Estense e Universitaria, Frammenti dell' Inferno e del Purgatorio.

[^4]:    ${ }^{12}$ See Giorgio Padoan, Il lungo cammino del «poema sacro». Studi danteschi, Firenze, Olschki, 1993. Marco Veglia’s Sul testo della «Commedia» (da Casella a Sanguineti), in «Studi e problemi di critica testuale», LXVI (2003), 65-120, is a valuable recent overview of the consequences for editors of the Commedia of the poem's likely 'diffusione a grappoli di canti' or 'composizione fascicolata'. There is substantial scholarly agreement that Inferno was in circulation by 1314, Purgatorio by 1315-16, and Paradiso (and thus the Commedia as a whole) not until 1321-22. But whereas all scholars accept that the Paradiso was released in batches of cantos, some (including Petrocchi, Folena, and, more recently, Claudio Ciociola) believe that Inferno and Purgatorio were released as complete entities: Petrocchi, Intorno alla pubblicazione dell' «Inferno» e del «Purgatorio», in «Convivium», N.S. VI (1957), 652-69; reprinted in Itinerari danteschi, Bari 1969, 83-118; Gianfranco Folena, La tradizione delle opere di Dante Alighieri, in «Atti del Congresso Internazionale di Studi Danteschi», Firenze, Sansoni, 1965, 1-78; Claudio Ciociola, Dante, in «Storia della letteratura italiana», vol. X, La tradizione dei testi, Roma 2001, 137-99 (174-97).

[^5]:    ${ }^{13}$ Dante Alighieri, La Commedia. Nuovo testo critico secondo i più antichi manoscritti fiorentini, a cura di Antonio Lanza, Anzio, De Rubeis, 1995.

[^6]:    ${ }^{14}$ Joseph Bédier, La tradition manuscrite du «Lai de l’Ombre», in «Romania», LIV (1928), 16196; 321-56.
    ${ }^{15}$ Cfr. Giancarlo Savino, L'autografia virtuale della «Commedia», Firenze, 2000; Marisa Boschi Rotiroti, Codicologia trecentesca della Commedia. Entro e oltre l'antica vulgata, Roma, Viella, 2004.
    ${ }^{16}$ Co: Cortona, Biblioteca Comunale e dell'Accademia Etrusca, ms. 88.
    Gabriella Pomaro makes a closely argued case for a date not earlier than 1365 in I testi e il Testo, in I moderni ausili all'ecdotica, Napoli 1994, 193-213. Savino L'autografia virtuale argues that another antica vulgata manuscript, Gv, is late fourteenth century. Boschi Rotiroti removes three witnesses from Petrocchi's list ( $\mathrm{Co}, \mathrm{Gv}$ and Fi ) and adds another 63, making a total of over 80 antica vulgata manuscripts.
    ${ }^{17}$ Triv: Milan, Biblioteca Trivulziana, ms. 1080.

[^7]:    ${ }^{18}$ Triv was 'solo in pochissimi casi emendato, e in base ad una precisa scala di valori'; Lanza Commedia xi.
    ${ }^{19}$ Lanza Commedia xiii.
    ${ }^{20}$ Dantis Alagherii Comedia. Edizione critica per cura di Federico Sanguineti, Firenze, Edizioni del Galluzzo, 2001.

[^8]:    ${ }^{21}$ Adolfo Bartoli, Alessandro D’Ancona, Isidoro Del Lungo, Per l'edizione critica della Divina Commedia in BSDI [s. I] n. 5-6 (1891), 25-27; followed by Barbi's Canone di luoghi scelti per lo spoglio dei mss. della Divina Commedia, 28-38. The Barbi loci are listed in Appendix A.
    ${ }^{22}$ Moore Contributions xxxi: 'My own belief would be that owing to the complicated intermixture of texts, such a genealogy never can be constructed.' The same conclusion is implicit in Witte's prolegomena to his 1862 editio maior of the poem. Both scholars had examined and collated hundreds of mss. of the poem in the course of their researches. Carl Täuber, I capostipiti dei manoscritti della Divina Commedia, Winterthur 1889, a doctoral thesis subsequently published at the author's expense, attempted a more general argument, but some aspects of his methodology were questionable and his thesis was not well received by Italian dantisti; see for example the review by Barbi, Sul testo della Divina Commedia, in «Rivista critica della letteratura italiana», anno VI, no. 5 (1890), 133 ('... il mezzo è fallacissimo ... ').
    ${ }^{23}{ }^{〔}$ Fu frutto di lunghi studi, e fissata quindi non a priori, cioè a caso ... '; Barbi, Ancora sul testo della Divina Commedia, SD XVIII (1934), 56.

[^9]:    ${ }^{24}$ There were contributions from Salomone Morpurgo, Antonio Fiammazzo, Berthold Wiese, Carlo Frati, Giovanni Nicolussi, Giovanni Mari, Aldo Olschki and Leopoldo Valle, as well as from Vandelli himself, Michele Barbi and Mario Casella. The completed moduli now form part of the Fondo Vandelli of the Società Dantesca Italiana; see Rudy Abardo, Giuseppe Vandelli filologo dantesco, in La Società Dantesca Italiana 1888-1988, Firenze 1995, 298.
    ${ }^{25}$ Vandelli Intorno al testo; Vandelli L’Edizione critica; Vandelli Verso la «Divina Commedia»; all now reprinted in Giuseppe Vandelli, Per il testo della «Divina Commedia», a cura di Rudy Abardo, con un saggio introduttivo di Francesco Mazzoni, Firenze, Le Lettere, 1989, where the statements about the impossibility of producing a stemma are to be found on pages 62,69 and 77.

[^10]:    ${ }^{26}$ Le Opere di Dante. Testo critico della Società Dantesca Italiana, a cura di M. Barbi, E.G. Parodi, E. Pellegrini, E. Pistelli, P. Rajna, E. Rostagno, G. Vandelli, con indice analitico dei nomi e delle cose di Mario Casella, e tre tavole fuor di testo, Firenze, R. Bemporad e Figlio, 1921. Petrocchi describes Vandelli's modus operandi in these terms: 'un metodo di interpretazione dei manoscritti che si potrebbe chiamare "deduttivo": schierare la registrazione più ampia possibile di un singolo luogo testuale, e scegliere di volta in volta la lezione più "fededegna" col proposito di risalire all'origine della molteplicità delle varianti e discoprire la variante matrice, o quanto meno la variante "archetipo". Insomma ogni verso, o magari ogni proposizione dantesca, costituivano un problema a sé stante di tradizione, quasi con uno stemma particolare ...' (Proposte 342); and again 'nell'impossibilità di addivenire ad una classificazione o quanto meno ad un ordinamento provvisorio dei codici, procedendo alla matrice caso per caso, verso per verso, riusciva in frequenti occasioni a pervenire ad una disposizione stemmatica del singolo passo, tale da accertare con buona sicurezza il primario stadio del processo eversivo della tradizione edita ...' (Antica tradizione 8). The vast materials on which Vandelli worked now constitute the Fondo Vandelli of the Società Dantesca Italiana. Vandelli's method is the one still commonly followed in editions of medieval English texts.
    ${ }^{27}$ Dante Alighieri, La Divina Commedia. Testo critico a cura di Mario Casella, Bologna, Zanichelli, 1923.
    ${ }^{28}$ Mario Casella, Studi sul testo della Divina Commedia, SD VIII (1924), 5-85 (henceforth Sul testo).
    ${ }^{29}$ Casella Sul testo 23.

[^11]:    ${ }^{30}$ Casella Sul testo 6.
    ${ }^{31}$ LauSC: Biblioteca Medicea Laurenziana, codex 26 sin. 1.
    Witte had judged LauSC to be the best surviving manuscript of the Commedia, and his edition privileged its readings over those of the other three mss. he used (La Divina Commedia di Dante Allighieri, ricorretta sopra quattro dei più autorevoli testi a penna da Carlo Witte, Berlino, 1862, lxxx); Moore also valued it highly (Contributions xxx). Casella accepted Witte's evaluation of LauSC’s importance; see note 47. Modern scholars have tended to view LauSC less enthusiastically: thus Veglia Sul testo 95 describes it as a 'manoscritto inaffidabile', because it is an editio variorum. Inglese Per il testo 492 n .38 compares the opposing evaluations of the testimony of LauSC in these terms: 'La tesi di S[anguineti] presuppone che il testo-base di LauSC sia trascrizione meccanica di un antecendente antichissimo o purissimo, e non, come mi sembra più credibile, la copia in pulito ... di un precedente codice di lavoro del medesimo Villani.'
    ${ }^{32}$ Casella's beta family consists of Boccaccio's exemplar Vat, the so-called 'gruppo del Cento', and 'affini e derivati', and it includes La; Petrocchi's beta family consists of just three mss., Mad, Rb and Urb (see below). To avoid confusion Paolo Trovato calls these two families $\beta^{\text {Cas }}$ and $\beta^{\text {Pett }}$, in

[^12]:    Nuove prospettive sulla tradizione della «Commedia». Una guida filologico-linguistica al poema dantesco, a cura di Paolo Trovato, Firenze 2007. See especially Trovato Stemmi 614-15.
    ${ }^{33}$ Casella Sul testo 25 and 28.
    ${ }^{34}$ Folena La tradizione 42. In context, vidi, interpreted as a past tense rather than a present, is a plausible reading: instead of Virgil's speech to Dante continuing Elena vedi ... vedi 'l grande Achille ... Vedi Paris, Tristano ..., it is possible to think that Virgil has ceased speaking and that Dante-author is now reporting what he saw in the past historic: Elena vidi ... vidi'l grande Acbille ... Vidi Paris, Tristano ... Indeed Antonio Lanza accepts vidi as the correct reading here, since it is in Triv, and rejects Casella's 'northern' explanation of both vidi and roggia; see Lanza Commedia xxxi; Inglese Per il testo 485 n. 11.

[^13]:    ${ }^{35}$ Petrocchi dated LauSC c.1391, but recent scholarship suggests a slightly later date; see WITNESS DESCRIPTIONS: LAUSC.

[^14]:    ${ }^{36}$ Mad: Madrid, Biblioteca Nacional, ms. 10186.
    Mad had been included in Sanguineti's analysis in an earlier version of the stemma, when he was working with eight manuscripts, but had been tacitly dropped from the final version, for reasons he does not explain, as far as I am aware; see Federico Sanguineti, Per l'edizione critica della 'Comedia' di Dante, in «Rivista di Letteratura Italiana», XII (1994), 277-92.

[^15]:    ${ }^{37}$ The full force of these images comes into play with the post- 1355 tradition, but, as his words cited earlier make clear, Petrocchi - like Moore before him - insisted that the problem of contamination was present from the earliest copies of the poem.

[^16]:    ${ }^{38}$ Thus Piero Boitani, Commedia, che sorprese!, in «Il Sole-24 ore», $10^{\text {th }}$ June 2001, 111; Maria Corti, Commedia. Così parlava Dante tra la perduta gente, in «La Repubblica», 10 ${ }^{\text {th }}$ June 2001, 28-29; Paolo Trovato, La Commedia secondo Sanguineti, in «La Rivista dei Libri», 11, $29^{\text {th }}$ December 2001, 29-32.
    ${ }^{39}$ Thus Rudy Abardo, review in «Rivista di studi danteschi», 1, 2001, 153-62; Pier Vincenzo Mengaldo, Una nuova edizione della «Commedia», in «La parola del testo», V (2001), 279-89; Cesare Segre, Postilla sull'edizione Sanguineti della «Commedia» di Dante, in «Strumenti critici», 17 (2002), 2, 312-14; Giorgio Inglese, Per il testo della Commedia di Dante, in «La cultura», 40 (2002), 483-505.

[^17]:    ${ }^{40}$ Dantis Alagherii Comedia. Appendice bibliografica 1988-2000, per cura di Federico Sanguineti, Firenze 2005. Two examples of disconcerting Urb readings for which no explanation or defence is offered will suffice. At Purg. xxiv 57 di qua dal dolce stil novo cb'i' odo in the $E N$ becomes in Sanguineti's edition di qua dal dolce stil!' e il novo cb'io odo! At Inf. xxvii 57 tra tirannia si vive e stato franco in the $E N$ becomes in Sanguineti's edition tra tirania si vive in stato franco. See Inglese Per il testo 503 and 494 n. 44; and 499-505 for an extended list of problematic Urb readings accepted by Sanguineti.
    ${ }^{41}$ The original team had five members: Mary Dwyer, Diana Modesto, Peter Robinson, Federico Sanguineti, Prue Shaw. All credit for the initial idea for the project must go to Dwyer and Modesto. For a fuller account see the FOREWORD.

[^18]:    ${ }^{42}$ For example, there are two cases in the textual tradition of the Monarchia: ms. Q is descriptus from ms. L and ms. R is descriptus from ms. E; see Dante Alighieri, Monarchia, edited by Prue Shaw («Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana», V/1), Firenze, Casa Editrice le Lettere, 2009, 110-14 and 116-18.
    ${ }^{43}$ The usual understanding is that descripti are copies derived from surviving manuscripts. Thus Franca Brambilla Ageno: 'Dall’utilizzazione per la ricostruzione del testo vanno esclusi i testimoni (codices descripti) che sono copia di testimoni conservati.' [my italics]; Ageno, L'Edizione critica dei testi volgari, Padova, Antenore, 1975, 87. Cfr. Paolo Chiesa: 'Il testimone che deriva esclusivamente da un altro testimone conservato è chiamato descriptus ... il termine descriptus non richiede che la discendenza sia diretta ... ma richiede invece che il testimone-fonte sia conservato.' [my italics]; Chiesa, Elementi di critica testuale, Bologna, Patron Editore, 2002, 75-76; Timpanaro Recentiores 165: 'i codices descripti (cioè, appunto, le copie di esemplari conservati)' [my italics]. Sanguineti's procedure clearly falls foul of this standard definition. Furthermore it is difficult to know how the supposedly 'ricostruibile' ancestor of these many manuscripts could in fact be reconstructed when their testimony is so divergent.

[^19]:    ${ }^{44}$ Sanguineti accepts Casella's view that La in both its original and corrected forms falls entirely within the 'supposta "famiglia beta" $\left[\beta^{\mathrm{Cas}}\right]$; for Petrocchi, as we have seen, La falls between his $\alpha$ and $\beta$ [ $\beta^{\text {Pet }]}$ families, and is the only manuscript which has this dual affiliation.

[^20]:    ${ }^{45}$ Listed on pp. xlviii-li of the Sanguineti edition.

[^21]:    ${ }^{46}$ Some of these mss. are declared to 'recare l'impronta del gruppo del Cento o dell'Officina Vaticana' on the basis of just 4 or 5 readings. Even Paolo Trovato, Sanguineti's staunchest supporter, admits that his procedure is unorthodox (Trovato Stemmi 626).
    ${ }^{47}$ Casella Sul testo 6.
    ${ }^{48}$ In Petrocchi's words, Casella saw LauSC as a 'geniale armonizzazione delle due tradizioni, in una sorta di testo critico meno antico di quello di Triv, ma con maggiore avvedutezza nello sfuggire agli errori dell'una e dell'altra famiglia' (Proposte 343); cfr. Casella: 'Il Witte ponendo il codice Villani a fondamento della sua edizione ha mostrato felice intuito, poichè i caratteri delle due famiglie $\alpha$ e $\beta$ genialmente vi si armonizzano ... ' (Sul testo 7). ${ }^{49}$ As we have seen, an earlier version of the introduction linked Mad to the 'Sanguineti seven'; now the eighth manuscript is ms. Florio (Udine, Biblioteca dei conti Florio). In the event the stemma will have just 7 manuscripts. Florio is said to be contaminated with alpha on the basis of a single reading, leaving Urb alone as uncontaminated representative of beta (but see note 57).

[^22]:    ${ }^{50}$ Monarchia III x 4.
    ${ }^{51}$ And as Moore had emphasised more than a hundred years ago; see Contributions xxxiii n. 38: 'I have often suspected either that a scribe copied different Canti or Cantiche from different exemplars; or that he sometimes had two or more exemplars before him and followed sometimes one, sometimes another ... For a few Cantos, two MSS. sometimes exhibit very striking coincidences, and then the resemblance suddenly disappears, often to be followed by equally remarkable coincidences in some totally different direction ... '. Cf. Pomaro I testi e il Testo 200-201 and Analisi codicologica 1057-60.
    ${ }^{52}$ See the studies of Giorgio Padoan and Marco Veglia cited at note 12.

[^23]:    ${ }^{53}$ Veglia Sul testo 67 describes the problem of contamination as 'il vero «acquisto in perpetuo» col quale, dal Moore e dal Witte in poi, tutti gli editori della Commedia hanno dovuto ... cimentarsi.'
    ${ }^{54}$ He continues: 'Sessant'anni fa si poteva sperare in un sondaggio tanto largo nella quantità dei testi interrogati quanto modesto nei rispetti delle proporzioni e delle situazioni del poema. Al momento attuale, conoscendo un po' meglio l'intrico a tela di ragno della tradizione manoscritta del poema, nessuno studioso si sentirebbe di attribuire ad una ricostruzione del testo sulla base dei quattrocento passi un'importanza eccedente quella di un primo e generico orientamento nel fitto dei rapporti tra i codici. E, per di più, lo

[^24]:    sceveramento delle varianti di un singolo passo recherebbe ad un risultato nettamente diverso da luogo a luogo della Commedia, e inoltre gravato dall'incognita di accoppiamenti casuali, a spiegazione dei quali nessuna norma sarebbe legittima.' (Proposte 339-40)

    55 The statements cited in an earlier section of this introduction make it clear that Petrocchi believed the testo-base and the edizione critica would prove to be in reality identical o quasi.

[^25]:    ${ }^{56}$ Sanguineti Appendice xvi.
    ${ }^{57}$ See n. 49. But Sanguineti later reinstates ms. Florio in response to his critics, in what inevitably looks like a defensive move; see Appendice xiv-xv. We can note that once again the argument turns on a single reading: the reading which Sanguineti had originally argued shows Florio to be contaminated with alpha is now instead declared to be an archetype error, and therefore not to prove a link with alpha. The reading in question is in any case a polygenetic error with no probative force; see Caterina Brandoli, Due canoni a confronto: i luoghi di Barbi e lo scrutinio di Petrocchi, in Trovato Nuove prospettive 99-214. Brandoli rightly excludes this reading from her list of Luoghi monogenetici del canone Barbi (pp. 113-21). Her valuable study does not, however, include memory slips among the categories of polygenetic error, so she includes both

[^26]:    Purg. ii 35 ali/aere and Par. xxiii 103 giro/spiro in her list of monogenetic errors, surely wrongly. Cfr. Inglese Come si legge 145: ‘... larga è anche la poligenesi di innovazioni, per effetto di memoria interna (trattandosi di opera molto letta, e talora ben nota al copista) ...'.
    ${ }^{58}$ The reading mentre for mente at Par. xxix 100; see Brandoli Due canoni 110.
    ${ }^{59}$ But in the Appendice Sanguineti will declare this error to be an archetype error corrected independently in LauSC and Urb (Appendice xiv); see note 57 above. This leaves no proof of $x$ at all, a point he fails to consider when outlining his revised view. In a later article he acknowledges that his reclassification of this as an archetype error affects his stemma radically: 'cesserà di esistere una bipartizione in $x$ e $y$ di $\alpha$ (il Laurenziano di Santa Croce tornerà, quanto meno, collaterale alla coppia Martini e Trivulziano, secondo quanto suggerito da Casella 1924)'; see Federico Sanguineti, Sui manoscritti Estense It. 474, Florio, Urbinati Lat. 365 e 366, in Trovato Nuove prospettive 651-67.

[^27]:    ${ }^{60}$ In fact several of the readings cited to establish the stemma are not among the loci: thus Inf. v 48 ( p. lxiii); Inf. xii 43 (p. lxiv). Sanguineti has put on the straight-jacket of the loci, but ignores it in these instances. If here, why not elsewhere?
    ${ }^{61}$ The spread of readings described here is registered accurately in Petrocchi's apparatus - with the exception of LauSC, which falls outside his time-frame - and is confirmed by direct examination of the manuscripts and can now be checked by any interested reader on this web site.

[^28]:    ${ }^{62}$ This is not the only time Sanguineti misreports the reading of LauSC: he also does so in his discussion of archetype errors when at Par. xxix 100 he registers altri instead of laltro (p. lxiii).
    ${ }^{63}$ Segre Postilla 312.

[^29]:    ${ }^{64}$ The question has become even more crucial in the light of Paolo Trovato's recent assertion (Stemmi 615) that Sanguineti's conclusion about Rb has been generally accepted: 'l'opposizione tra U e la restante tradizione va considerata un punto fermo'.

[^30]:    ${ }^{65}$ Many of the 58 cases are readings Urb and Rb share with A and H . Such cases do not serve our immediate purpose here: rather, in terms of the stemma for the 'Sanguineti seven', such readings merely separate MTL from the remaining four mss. The full list for Urb and Rb on p .364 is preceded by a slightly shorter list to show the links between Urb and Mad.

[^31]:    ${ }^{66}$ Trovato Nuove prospettive 11-12 endorses this view. For a more nuanced view of what constitutes a maggioranza in these circumstances see Inglese Per il testo 498 n. 59.

[^32]:    ${ }^{67}$ Oddly (and anomalously), the Aldine text con is corrected by Martini to cb'a.

[^33]:    ${ }^{68}$ The Aldine reading sincontraua is untouched by Martini.
    ${ }^{69}$ It seems remarkable that Sanguineti accepts the U reading in as correct here: Witte, Moore, Vandelli, Casella, Petrocchi all read e stato franco. The reading in is also in Mad and Laur. See Inglese Per il testo 494 n. 44. Trovato Stemmi 641-42 argues that in is an archetype error corrected conjecturally in most mss.; see below.

[^34]:    ${ }^{70}$ The Mad reading is foran losso.
    ${ }^{71}$ On this and the preceding reading, see Inglese Per il testo 494.

[^35]:    72 See Inglese Per il testo 494.

[^36]:    ${ }^{73}$ Cf. Folena La tradizione 47-48; Veglia Sul testo 68.

[^37]:    ${ }^{74}$ See Roddewig Commedia-Handschriften 405: Handschriften mit Versinterpolationen. Among the Sanguineti seven, only Rb has an interpolated passage, and that for very specific reasons related to aesthetic considerations of mise en page; see WITNESS DESCRIPTIONS: Rb and the bibliography listed there.
    ${ }^{75}$ Pasquali Storia della tradizione xvii-xviii: 'Spesso di testi molto letti sia nell'antichità, sia nel Medioevo, si è formata una vulgata che, come suole la moda, progrediva da un centro verso la periferia, ma non sempre la raggiungeva.'
    ${ }^{76}$ Thus Petrocchi Introduzione 368: 'Urb è manoscritto di rara resistenza all'errore, e, ciò che più interessa, alla contaminazione'; and 376: 'Anche Rb presenta una notevole resistenza alla diffusione di errori tipici di $\alpha$, e quindi viene a comprovare sia l'affinità sostanziale con Urb, sia l'intrinseca qualità del suo testo.'

[^38]:    ${ }^{77}$ The vatican (vat) and 'Cento' groups had been identified in the nineteenth century. Vandelli had tentatively identified the Northern mss. Urb Rb and Mad as constituting a group (reported by Barbi in SD 23 1938, 181-82), but the case was first argued in detail by Petrocchi. On the 'gruppo del Cento' see most recently Boschi Rotiroti Codicologia 77-93.
    ${ }^{78}$ See V. Word Collation: Regularisation for a full account.

[^39]:    ${ }^{79}$ EN 367-83. The precision with which the computer-generated trees places the printed editions in relation to the manuscripts would in itself seem to be a striking confirmation of the methodology and the accuracy of its results.

[^40]:    ${ }^{80}$ See II. WITNESS DESCRIPTIONS: Rb.

[^41]:    ${ }^{81}$ Segre Postilla 313. Cf. Inglese Come si legge 153: ‘Delicatissimo è il problema posto dalle lezioni singolari di Urb: talvolta ... esse sono lezioni di $\beta$ che appaiono isolate per effetto dell'influenza di $\alpha$ su Rb e Mad; ma privilegiare per principio Urb comporterebbe la sicura promozione di un numero $x$ di innovazioni particolari, prodottesi nei trent'anni compresi fra $\beta$ (o e) e Urb.'
    ${ }^{82}$ Thus Sanguineti Esperienze 23: 'Ora, in virtù dello stemma, la recensione si chiude, per così dire, a colpo sicuro. ... La responsabilità soggettiva è drasticamente ridimensionata.'
    ${ }^{83}$ Sanguineti, Sui manoscritti Estense It. 474, Florio, Urbinati Lat. 365 e 366, in Trovato Nuove prospettive 651-67.

[^42]:    ${ }^{84}$ Moore Contributions xxxii: 'This then leads us finally to describe what appears to be the only practically available method open to us, at least in the present condition of the problem, I mean the method of weighing and classifying MSS. by the help of carefully selected test-passages ...'

[^43]:    ${ }^{85}$ As at Inf. xvi 34-36 (Questi, l'orme di cui pestar mi vedi/ ... fu) in the Holkham Hall manuscript now in Oxford, where a first careless slip (making Queste agree with orme) leads to a second mistake (an adjustment of the verb from singular fu in agreement with Questi to a plural fur in agreement with Queste orme), making the lines unintelligible and beyond the wit of any scribe to restore to sense.

[^44]:    ${ }^{86}$ The preceding two paragraphs are cited almost verbatim from: Dante's 'Monarchia' as a test case for the use of phylogenetic methods in stemmatic analysis, by Heather F. Windram, Prue Shaw, Peter Robinson and Christopher J. Howe, in «Literary and Linguistic Computing»: doi:10.1093/llc/fqn023, where an ample bibliography is provided. For a fuller account, see the final section of this Introduction (The DNA of the Commedia).

[^45]:    ${ }^{87}$ EN ad loc.: 'poco si può inferire dalla presenza o dalla scomparsa di diss'io'. Cf. Inglese Come si legge 62: 'il punto critico, spesso insuperabile, è nella valutazione di un dato errore come separativo'; Martelli Considerazioni 140 speaks of: 'la sfera del iudicium, nel cui àmbito si inscrive fatalmente la valutazione della congiuntività e della separatività dell'errore (o degli errori)'.
    ${ }^{88}$ This is not the only radical change of mind about the value of a variant in Sanguineti's various discussions of the textual tradition of the poem: donne at Par. xv 101 was said to be an archetype error in Per l'edizione 290 (the only one, in fact) but is accepted into the text as the genuine reading in the edition; stile il novo at Purg. xxiv 57 was judged to be an errore guida in Per l'edizione 283 but is likewise accepted as genuine in the edition.

[^46]:    ${ }^{89}$ Moore Contributions 282-83.
    ${ }^{90}$ See, for example, Varvaro Critica dei testi 82 n. 30: 'Nello stemma che chiude il vol. I dell'ediz. Petrocchi è indicato un archetipo $(O)$, ma se non erro lo studioso non dimostra in nessun luogo la sua esistenza.' Cf. Inglese's useful succinct summary of Petrocchi's argument in Come si legge 144-54 (La tradizione della Commedia) and his conclusion (153): 'La quantità degli errori $\alpha+\beta$ non è tale da autorizzare un uso incondizionato del termine archetipo.'; and id. Per il testo 497. See also Trovato Stemmi 621-24.

[^47]:    ${ }^{91}$ Vandelli Il più antico testo critico 138-41.
    ${ }^{92}$ Folena La tradizione 51.

[^48]:    ${ }^{93}$ Petrocchi Introduzione 278-79; Lanza Commedia xx.
    ${ }^{94}$ Sanguineti Comedia lxiv n. 7.
    ${ }_{95}$ Trovato Stemmi 634.
    ${ }^{96}$ Petrocchi Introduzione 406: 'Le norme d'edizione consigliano dunque che, coincidendo i testimoni dell'antica tradizione fiorentina con quelli del sub-archetipo padano, la relativa lezione debba sempre essere prescelta, a meno che l'esegesi non la dimostri sicuramente viziata di una anche parziale corruttela.'
    ${ }^{97}$ Taken at face value, it has to be said, Forese's declaration (quoted earlier in this introduction) would seem to support the Petrocchi position.

[^49]:    ${ }^{98}$ See note 31 .

[^50]:    ${ }^{99}$ See note 64 .

    100 See the review by Avalle in «Strumenti critici» I/2 1967, 199-202 [201]; Trovato Stemmi 621-24; and see note 87 .

    101 Veglia Sul testo 118: 'Se stemmi si vogliono tracciare, dovranno essere varî, e dovranno raggruppare non le tre cantiche, ma gruppi di canti, o, almeno, ciascuna cantica per volta.'

    102 Ciociola Dante 195.
    ${ }^{103}$ Lanza Commedia XI n. 1; Trovato Stemmi 641 n. 127 accepts only one of these as genuine.
    104 Inglese Per il testo 494-97 (495).

[^51]:    105 Trovato Stemmi 641-43; 648.

[^52]:    ${ }^{106}$ See Trovato Stemmi 618-19.
    107 See note 22. Cfr. Pomaro Analisi codicologica 1057-60 where the working method of 'il copista di Parm’ is described in these terms.
    ${ }^{108}$ See, for example, Wendy J. Phillips-Rodriguez, Christopher J. Howe, Heather F. Windram, ChiSquares and the phenomenon of "Change of exemplar" in the Dyutarparvan, in Sanskrit Computational Linguistics, Springer Berlin/Heidelberg, 2009, 380-90.

[^53]:    ${ }^{109}$ Rather, it enables us to confirm that the contamination with $\alpha$ identified by Petrocchi is more pronounced in Paradiso than in the earlier cantiche.

[^54]:    ${ }^{110}$ Richard H. Thomas, Walter Schaffner, Allan C. Wilson \& Svante Pääbo, DNA phylogeny of the extinct marsupial wolf, in «Nature», vol. 340, $10^{\text {th }}$ August 1989, 465-67. I would like to thank Christopher Howe for this neat example.

[^55]:    ${ }^{111}$ Franceschini Stratigrafia 303-4 discusses the character of these glosses.

[^56]:    112 'A Pisa, Lucca e Pistoia, si ha sempre o quasi sempre ogosto in luogo di agosto ... Si potrebbe supporre ... che questo ogosto occidentale venga per via diretta dal lat. Class. AUGUSTUS; ma appare tutto sommato più probabile ch'esso continui ... il lat. volg. *AGUSTUS, e che la o iniziale sia dovuta ad assimilazione alla vocale tonica.'
    ${ }^{113}$ See also Boschi Rotiroti-Savino Nel cantiere 309-314, where the documentation on Ash, as noted, is by Antonella Taiti.
    ${ }^{114}$ See further bibliography on the question cited there.
    ${ }^{115}$ See also Bertelli Dentro l'officina 84 n. 23.

[^57]:    ${ }^{116}$ Petrucci's opinion is reported by Franceschini Un codice 134. Roddewig believed the glosses to be in the hand of Tommaso Benetti.

[^58]:    117 The attribution to Villani, although disputed by Batines and Witte in the nineteenth century, was vindicated definitively by Marchesini Due mss. Autografi.
    ${ }^{118}$ Marchesini Due mss. autografi 386 n. 2 lists three cases: Par. xiii 61; Par. xviii 123; Par. xix 135; see also p. 387 n. 1.

[^59]:    ${ }^{119}$ F. Villani, Expositio seu Comentum super «Comedia» Dantis Allegherii, a cura di S. Bellomo, Firenze, Le Lettere, 1989; see Francesco Mazzoni, La critica dantesca nel secolo XIV, in «Cultura e Scuola», 13-14, 1965, 289-90 and 296-97.
    ${ }^{120}{ }^{\text {' }} \mathrm{Fra}$ Tedaldo ... per evidentissime valutazioni paleografiche, deve aver affrontato questa fatica dantesca proprio negli ultimi anni della sua vita’.

[^60]:    121 'Notevole, tra l'altro, è che il Villani non aveva fatto elisioni di sorta, mentre il recensore le introdusse quasi sempre' (Marchesini Due mss. autografi 388).

    122 'Egli ebbe poi la singolare pazienza di segnare i punti sugli $i$ nell'intero poema ... è manifesto che questo lavoro fu fatto con l'intenzione di rendere la lettura più spiccia ed agevole, e veramente, attesa la forma del carattere del Villani, bisogna confessare che torna comodo' (Marchesini Due mss. autografi 388).

[^61]:    123 'Si riconosce facilmente dalla tints dell'inchiostro, che di solito è più o mono hera di quella del teston, e sempre eguale alla tint delle note marginali scritte cal recensore sulle medesime pagine.' (Marchesini Due mss. autografi 388 n. 1).

[^62]:    124 Giuliano Tanturli, L'interpunzione nell'autografo del «De origine civitatis Florentie et eiusdem famosis civibus» di Filippo Villani rivisto da Coluccio Salutati, in Storia e teoria dell'interpunzione. Atti del Convegno internazionale, Firenze 19-21 maggio 1988, Roma, Bulzoni, 1992, pp. 65-88 (p. 70: ‘Il Villani sostanzialmente non interpunge mentre scrive, ma a copia conclusa, all'atto di una rilettura.')

[^63]:    ${ }^{125}$ Petrocchi Introduzione 77. Vandelli Il più antico manoscritto 93 n .1 had commented on Martini's probable failure to register certain minimal spelling and formal variants: 'Di sicuro, per es., egli non notò se non parzialmente sanza per senza e palido per pallido; e in generale le divergenze in fatto di lettere doppie e scempie appaiono registrate con poca regolarità.' Geymonat Tendenze correttorie 263 however demonstrates that 'l'attenzione di Martini per la veste linguistica dell'antico codice è più consistente di quanto appaia dalle parole di Vandelli.'

[^64]:    ${ }^{126}$ See below under Hands for Vandelli's and Savino's evaluations of the claims made in this sentence.

[^65]:    ${ }^{127}$ It is surely significant and interesting that the scribe knew exactly how many lines there were in each cantica of the poem. The date 1330 is in Florentine style, which in standard chronology is 1331.
    ${ }^{128}$ The emendations are eidem>eiusdem; krissimi>Karissimi; quisnam>quicquam;
    subsequenter>subsequentis.

[^66]:    ${ }^{129}$ See also Boschi Rotiroti Codicologia 15.

[^67]:    ${ }^{130}$ The canzone is no. 13 in the Edizione Nazionale of the Rime edited by Domenico De Robertis, Firenze, Le Lettere, 2002; no. 81 in Dante's Lyric Poetry, edited by Kenelm Foster and Patrick Boyde, Oxford 1967; and no. CIV in Rime della maturità e dell'esilio, edited by M. Barbi and V. Pernicone, Firenze, Le Monnier, 1969.

[^68]:    ${ }^{131}$ For a full account of the evidence, see Pomaro I copisti 501-2; Battaglia Ricci Il commento illustrato 625-26.

[^69]:    ${ }^{132}$ See $E D$ II 255-56.

[^70]:    ${ }^{133}$ Trovato Nuove prospettive 57 suggests a later date (1345-1355?).

[^71]:    ${ }^{134}$ For a full list of mss. by or attributed to Francesco di ser Nardo see Bertelli I codici.
    135 'La scrittura e l'impaginazione del Trivulziano 1080 sembrano rappresentare, come per un compito di tutela, la tradizione recta via dell'originale autografo della Commedia ...' (10). Savino notes (9 n. 22) that Teresa de Robertis and Sandro Bertelli plan a study of Francesco di ser Nardo's handwriting but this has not yet appeared, as far as I am aware.
    ${ }^{136}$ Geymonat Sulla lingua 332: 'Vista la provenienza anagrafica del copista, si è sottoposto Triv a uno spoglio mirato ad alcuni fenomeni rilevanti nell'evoluzione del fiorentino durante il Trecento, con un occhio particolare a quanto può essere dovuto ad influssi del contado, specialmente in direzione senese.' ${ }^{137}$ Geymonat Sulla lingua 373: 'Le oscillazioni rilevabili nella produzione di Francesco, e i molti casi di convergenza tra Mart e Triv, fanno pensare a un copista abbastanza rispettoso della coloritura dell'antigrafo; e tuttavia ... si incontrano fenomeni, pur rari, riconducibili alle origini di contado dello scrivente.'

[^72]:    ${ }^{138}$ See Boschi Rotiroti Codicologia 27.

[^73]:    ${ }^{139}$ This paragraph is repeated from the introduction to the electronic edition of the Monarchia on DVDRom by the same editor. As noted there, the characterisation of transcription as both decoding and encoding is indebted to Robinson and Solopova 1993 (where Solopova was responsible for this neat formulation).

[^74]:    romsta zuvo el romita [\riva/]e

    Ash Purg. xi 25

[^75]:    ${ }^{140}$ Pomaro Appendice 325.

[^76]:    ${ }^{141}$ Pomaro leaves open the question of whether the interventions of hand $\beta$ are responsible for the closeness of Ash and Ham ('sarebbe meglio da valutare se proprio la mano $\beta$ non contribuisca in modo determinante alla vicinanza Ash / Ham'), but we feel confident in ruling out this possibility.

[^77]:    ${ }^{142}$ But others disagree on the dating of these glosses: Antonella Taiti dates them as late-fourteenth and fifteenth century; see Marisa Boschi Rotiroti and Giancarlo Savino, Nel cantiere del nuovo Batines, in SD 69 (2004), 295-327 [310].

[^78]:    ${ }^{143}$ But see Hands under Witness Descriptions: LauSC for an account of Umberto Marchesini's view that these corrections were all made by the revising hand.

[^79]:    144 Sanguineti Per l'edizione 288 reports readings for the scriptura prior of LauSC which in truth are not always decipherable; see especially Purg. ii 35 and Par. xxiv 143, where the alleged erased readings are absolutely not clear and where we therefore transcribe with no correction in the first case (since it is not clear that there is an erasure here) and [...] in the second. Contrariwise, at Par. xxxi 54 Sanguineti transcribes <..> where the cancelled $i l$ is perfectly visible.

[^80]:    ${ }^{145}$ Marchesini's explanation for these curious cases is that the reviser, having cancelled the original reading and substituted another for it, then wrote the erased reading in the margin, perhaps because he was unsure if his correction was after all an improvement; see Marchesini Due mss. Autografi 390 and n. 2.

[^81]:    146 We know that the milieu in which Villani and the reviser worked was extremely attentive to minute questions of detail of this kind; see Tanturli L'Interpunzione 66.

[^82]:    ${ }^{147}$ A.A. Renouard, Annales de l'imprimerie des Alde, third edition, Paris 1834, p. 73.

[^83]:    148 Petrocchi Introduzione 77.

[^84]:    ${ }^{149}$ Gabriella Pomaro, I copisti e il testo. Quattro esempi dalla Biblioteca Riccardiana, in La Società Dantesca Italiana 1888-1988. Convegno Internazionale, Firenze 24-26 novembre 1988, Atti a cura di Rudy Abardo, Milano-Napoli 1995, 497-536 (498-503; 514-25).

[^85]:    ${ }^{150}$ I would like to express my thanks to David Robey for the opportunity to discuss some of the thornier cases with him. Responsibility for the decisions taken is of course entirely my own.

[^86]:    Node A; drita (hence, Rb)
    Node C: diritta (hence, all other witnesses)

[^87]:    ${ }^{151}$ Compare the "Heuristic Search", with one hundred replications based on searching different samples of the possible trees, used in the Monarchia analysis. The difference is that for the twenty-two versions of the Monarchia, the number of possible trees is so great as to make it impossible to carry out an exhaustive search. Therefore, instead of surveying every possible tree as we are able to do for the Commedia, the heuristic search employed in the Monarchia deployed a pragmatic ("heuristic") system of searching different samples of the possible trees, optimized to try to find those likely to be most parsimonious.

[^88]:    ${ }^{152}$ It should be noted that in our VBase analysis, the readings returned as "LauSC-c2" are only those identified in the transcription as the result of interventions by the c 2 scribe: that is, they do not include the changes made by the c 1 scribe. It could be argued that, as the c 2 scribe had the $c 1$ changes in the manuscript already, and on only five occasions alters the $c 1$ reading, in all other cases he accepts the c1 reading: and thus what we call "LauSC-c2" should also include the c1 readings. On the other hand, the differences between the two layers of correction shown here suggest that we are dealing with distinct scribal behaviours, which analysis might usefully keep apart.

[^89]:    ${ }^{153}$ Peter Robinson The Collation and Textual Criticism of Icelandic Manuscripts. (2): Textual Criticism, in «Literary and Linguistic Computing», 4 (1989) 174-181.

[^90]:    154 While it is true that the substitution of solver for sol voler counts as a possible convergent error (the duplicated $o l$ is omitted on its second occurrence), it is nonetheless remarkable that the correct reading sol voler has almost entirely disappeared from the surviving antica vulgata tradition, being found in its entirety only in Urb and Rb and one other antica vulgata manuscript, Po. This is the kind of case where Petrocchi's words on the weight to be attributed to the distribution of certain kinds of error ("Errori prevalentemente monogenetici") seem particularly pertinent (Introduzione 135-36). It is certainly more parsimonious to think of solver

[^91]:    as being introduced just once, in $\alpha$, than as being introduced repeatedly in separate operations, and thence into almost all surviving antica vulgata manuscripts.

[^92]:    ${ }^{155}$ Although the encoding described here was devised by myself and Peter Robinson, the whole Commedia Project team contributed by producing examples and bringing to my attention new cases that had not yet been considered or instances in which, for one reason or another, the original encoding did not work. I would like to thank Peter Robinson and Prue Shaw for their suggestions about this article and the Commedia Project team for contributing to the development of the guidelines and for their efforts in using them to transcribe the witnesses of the Commedia.
    ${ }^{156}$ Modified versions of this system have been employed by the Canterbury Tales Project and by Dorothy Severin and Fiona Maguire for their Electronic Corpus of 15th Century Castilian Cancionero Manuscripts (http://cancionerovirtual.liv.ac.uk/main-page.htm).
    ${ }^{157}$ My involvement in the Commedia Project was made possible through STEMMA, a project funded by the Leverhulme Trust between 2000 and 2003.
    ${ }^{158}$ This web site includes a detailed article by Prue Shaw, "General Transcription Note," which describes the transcription system in detail. For general information about the transcription system employed by the Commedia Project readers are referred to that article. Here I choose illustrative examples which show how these guidelines developed.

[^93]:    ${ }^{159}$ At the end of this article, we have included a list of the elements used in the edition. The use of this system with other texts is the subject of a forthcoming article.
    ${ }^{160}$ Our encoding of this passage can be found below.

[^94]:    ${ }^{161}$ For example, Codex Sinaiticus shows changes and corrections made by many correctors over several centuries.
    ${ }^{162}$ All references to XML-TEI are to P5 (http://www.tei-c.org/release/doc/tei-p5doc/en/html/index.html).

[^95]:    ${ }^{163}$ The <add> and <del> elements are the standard TEI recommendation for added and deleted text, as described in P5. See http://www.tei-c.org/release/doc/tei-p5-
    doc/en/html/CO.html\#COEDADD, under the heading 3.4.3 Additions, Deletions, and Omissions.

[^96]:    ${ }^{164}$ Peter Robinson and I reached this decision after several conversations. Robinson's involvement in the original TEI guidelines and his responsibility in the original implementation of <add> and <del> were invaluable in this new examination of their use.
    ${ }^{165}$ A possible exception could be found in the use of the word deletion when used as a synonym of erasure. However, it is often the case, and particularly within a context of manuscript culture, that the cancellation of a text can be expressed in a variety of forms.

[^97]:    ${ }^{166}$ Notice how all these processes are mediated by an agent (the editor/transcriber/ reader) who attributes a conventional meaning to them. Indeed, faced with the same set of circumstances different editors are very likely to interpret the same text as a deletion.

[^98]:    ${ }^{167}$ Here, the word original does not mean archetypal, instead it denotes the oldest word present in a particular document.
    ${ }^{168}$ This could also be <rdg type="c2">, <rdg type="c3">, <rdg type="c4">, etc., depending on the number of distinct scribes or correctors in a particular witness.

[^99]:    ${ }^{169}$ The word "del" could be understood as an alternative reading, rather than a correction.

[^100]:    ${ }^{170}$ In practice, the encoding system employed in this publication does not follow all the recommendations included in the internal guidelines. This is particularly noticeable in the treatment of the modification of minims. In the previous example, when the scribe modifies the word "sicuro" to read "maturo", it is not strictly correct to say that the letter " $m$ " was written over "si", which is what the encoding seems to express. My recommendation for instances that involve the modification of minims was to make use of an entity (\&i;) within the element <rdg type="lit"> to separate them. The previous example would have been expressed as:
    <app>
    <rdg type="orig">sicuro</rdg>
    <rdg type="c1">maturo</rdg>
    <rdg type="lit"><s type="rp"><s type="cow">s</s>\&i;\&i;</s>\&i;<s type="il">a</s><s type="rp"><s type="cow">c</s>t</s>uro</rdg>
    </app>

[^101]:    ${ }^{171}$ In this instance, the encoding system suggested to describe it is as follows:
    <app>
    <rdg type="orig">prima</rdg>
    <rdg type="c1">priua</rdg>
    <rdg type="lit">pri<hi rend="er"><hi rend="ud">\&i;</hi></hi>\&i;\&i; a</rdg>
    </app>
    This describes the state of the document in which one of the minims of the " m " was both underdotted and erased thus producing the new reading. Such change would have represented an insurmountable difficulty for our previous encoding system, but we can now encode the change by using minims within the <rdg type="lit">. This might not seem like a very big leap, but it implies a different kind of thought, a different conception of the final purpose of these transcriptions and their encoding.

[^102]:    172 While the Bergen edition of the Wittgenstein Nachlass edition distinguishes the variant states of the text as does our encoding, it does not provide a representation of the text of the document, as we do. At the time of writing, a TEI workgroup on encoding of genetic manuscript transcription is considering the matter. While their work is not yet complete, a preliminary report at http://users.ox.ac.uk/-lou/wip/geneticTEI.doc.html\#index.xmlbody.1_div.1_div. 1 shows that this group is addressing the same distinction between "the text of the document" and the "variant states of the text". However, this distinction is differently expressed, as between simply "document" and "text" (or, in German, between "befund" [record] and "deutung" [meaning]). As explained below, this is more than a difference of expression. Further, the system they offer suggests an entire separation of the transcription of the two levels. Thus, one would transcribe the "document" into one structure; the "text" into another, with complex links between the two. This is rather more complicated than our scheme, which focuses only on places of variation within a continuously-written document and seeks to include all encodings within a single encoding of that document. The range of situations addressed by the workgroup is far wider than encountered in manuscripts of the Commedia. However, it can be argued the solution here proposed, where the variant states of the one text present in one document in a single structure are encoded, has considerable advantages. It is significant that the first example given in the workgroup document, and which is used to illustrate the complete separation of transcripts of "document" and "text", is of a diary entry which contains two separate texts: one beginning "Feed birds in the park today..", and a second, written at right angles to the first, beginning "Samaria is a Greek brand of water..". In the terms we use, these are not variant states of the text at all: they are actually quite distinct texts, which happen to be written on the one piece of paper. Here the difference between the distinction this paper offers, between the text of the document and the text or texts which might be constructed out of it, and between simple "document" and "text" as offered by the workgroup, becomes important. For our work, our distinction serves us well. [Note contributed by Peter Robinson]

