

# Encoding the Text: Epiphanius and the Augustine *City of God* Commentary Project

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## Introduction

The St. Augustine *City of God* Commentary project is an ambitious effort by an international team of scholars to produce a commentary on Augustine's *De civitate Dei*. Under the leadership of Professor Gillian Clark (University of Bristol), and funded by a generous five year grant from the Arts and Humanities Research Council, this commentary will be produced in two forms: a traditional set of printed volumes, to be published by Oxford University Press, and an electronic version that will reside on the Internet.

The coordination of an international effort on a text of this magnitude would have been difficult, if not impossible, before the advent of modern computer technology. One of the greatest headaches posed by a multi-contributor, collaborative commentary arises from the need to maintain editorial consistency. The *City of God* Commentary project could have as many as 22 collaborators, each working on a book (or books) of the *City of God*. Naturally, each of these commentators will have their own idiosyncratic ways of writing a commentary. Each author has his or her own style when it comes to writing citations (both primary and secondary) as well as individual ideas on how the notes should relate to the text and be laid out. While this poses a smaller problem in a single author work, a large multi-volume commentary requires standardization and a unified presentation. Egregious extremes may be attenuated by insisting on adherence to a style sheet, but once again, complete compliance with these standards will largely depend on the temperament of the contributor.

Even if we were successful in pressing all of the contributors into the same mould, there is still the problem of inadvertent error. It is easy to make mistakes when entering multiple citations (both primary and secondary). Spelling mistakes creep into our notes as well as bibliographies. While this is not a problem unique to the *City of God* commentary project, it would be desirable, from an editorial standpoint, to suppress these inadvertent errors at their source, rather than having to weed them out of thousands of pages of typescript.

The project is further complicated by the requirement to produce a web-based version of the commentary. Originally, it was thought that this would take the form of 22 PDF files that would be placed on the Web for viewing with Adobe Acrobat. While this approach has some advantages – one need only run an RTF file through a converter to create a PDF file – it is a bit clumsy and does not leverage the full potential of HTML. Presenting the commentary as a series of chapters, annotated with pop up notes and cross-linked to other chapters in the work would be more

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interactive and user friendly; moreover this arrangement would better exploit the capabilities of its electronic medium. The obvious drawback to this approach is the amount of time it would take to create web pages from the commentary submitted by the collaborators – some poor research fellow or postgraduate would be kept quite busy marking up text – and even after the pages had been encoded, they would require a commitment of time and energy to keep them current.

## Epiphanius – The Theory

The solution to the problems outlined above is also technology-based, a piece of software that is facilitating the collaborative development of this commentary. This program is called Epiphanius, our commentary editor. I wrote Epiphanius in Java in order to make it a cross-platform tool (able to work with a variety of operating systems including Linux, Windows, and newer versions of Macintosh OS-X). At present the software is stable (although not complete) and has been used by several of our commentary writers to work on the text.

Epiphanius was designed to standardize the manner in which the commentary is written. The program stores the individual commentary files in an XML format. Every item of data, from the *lemmata* of the individual notes to the text and translations themselves are tagged and defined in an XML file structure. This makes our commentary data eminently portable and reusable in other applications that we have yet to envision. The tagging of data also makes it easy to produce files in a variety of formats. Epiphanius is able to export its files in three major formats: Rich Text Format (RTF) for use with word processors, HTML for display on the Internet, and LaTeX to produce camera ready copy for a publisher.

Another advantage of Epiphanius is that it enforces standardization. The user simply enters commentary notes into a designated window; Epiphanius controls the style and formatting of the output. Primary and secondary citations are entered by picking the relevant citation from a list of stored records, eliminating typing errors on the part of the user. Predefined templates facilitate the entry of bibliographic records in a program called EpiBib. The user simply fills in the blank spots on a form, and then this record is then uploaded to a central database server, where it becomes available to all the other users. The advantage of this approach is twofold: the collaborative sharing of bibliography records reduces the amount of records any individual user must enter – that is, if 12 users want to refer to the same secondary source, one person types it in and the other 11 may cite the secondary source in their work without having to type in all of the details again. The second advantage is editorial: once the citation is correct it will always be correct no matter where it is cited (in the notes or in the bibliography of the individual chapters of the commentary). If there is a mistake in the record, the editors can simply emend the mistake in the central database server, rather than having to change the reference every place it appears in the commentary on all 22 books.

## Epiphanius – The Application

Figure 1 shows the main screen of Epiphanius. The *City of God* is divided into 22 books, and each commentary file represents one of these books. Epiphanius further subdivides the book into chapters and paragraphs. Each chapter and paragraph is

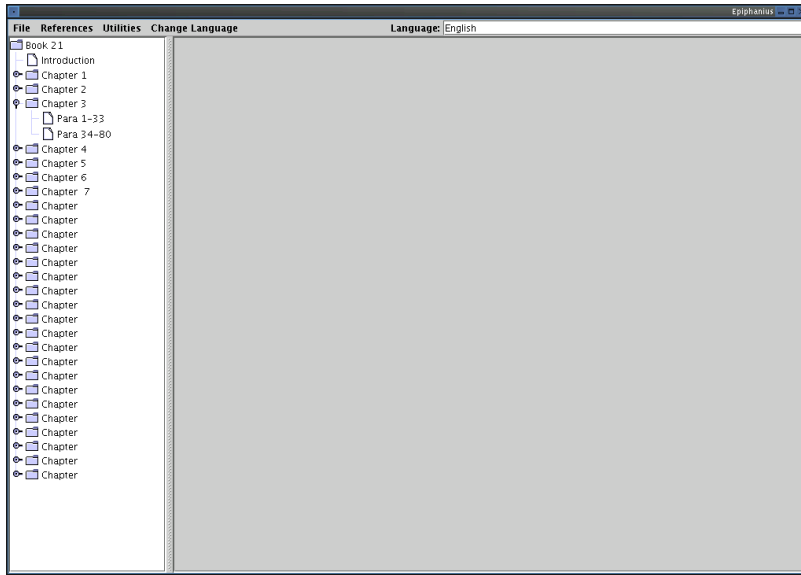


Figure 1: Epiphanius Main Screen

represented by an icon in the data tree at the left-hand side of the screen. When a user clicks on one of the elements in this data tree, Epiphanius displays the selected chapter or paragraph on the right hand side of the screen. Title and synopsis fields are linked to each chapter and paragraph. The real work, however, takes place at the paragraph level.

The Paragraph Screen (figure 2) is divided into two major columns, one of which holds the source text in its original language, and the other the user's translation. Commentary notes, which are at the heart of the system, can be attached to words or phrases in either the text or the translation window.

When the user opts to insert a note (or clicks on an existing note) Epiphanius displays the Note Entry window (figure 3). The note is logically linked to the commentary by the specification of a *lemma* (or *lemmata* if the note covers an extended phrase) and the line number references in the critical edition. In the example displayed here, *si valuerimus* marks the start of the phrase, while *res ipsas* concludes the phrase. The phrase is found in line 12 of the critical edition, so that number is entered in the line number field.

The user may also categorize the note. For instance, a note that gives a biblical citation could be designated as such. At present, Epiphanius only contains a few note categories, but these are expandable and it is our hope that eventually we shall have a great number of categories. This will make it possible to tailor the display of our web-based commentary to the interests of a specific user. That is, a person wanting to use the on-line commentary to research Augustine's views about ancient philosophy could elect to display the philosophy notes, and suppress notes that related to theology or political science.

The notes are also classified according to their intended display medium. The user may choose to have a note only appear in the print version of the commentary, the HTML version of the commentary, or in both versions. As with any printed text, the commentators will be required to make their commentary fit into a limited amount of space. In the web-based version however, space will not be such a crucial

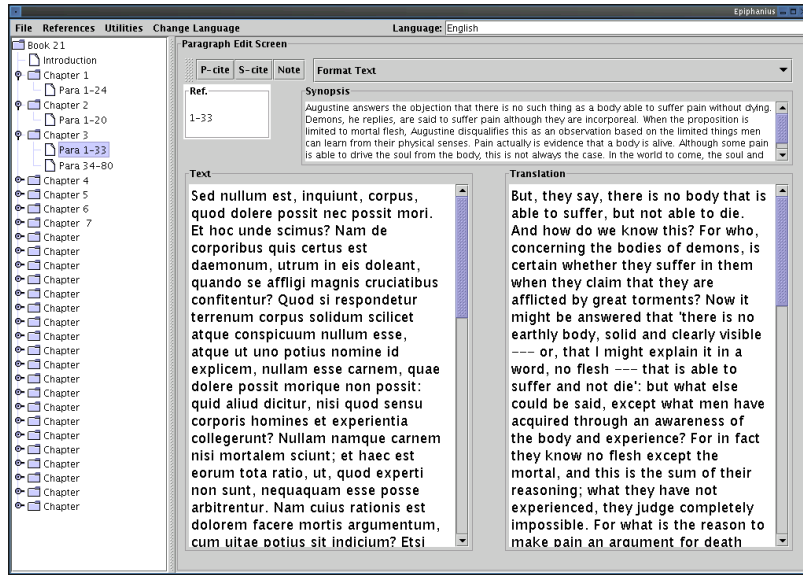


Figure 2: Paragraph Screen

factor – the commentators will be able to expound on their subject at length – which is the reason we have made a distinction about where the notes will appear. The user may also mark a note as a draft version, which signifies a work in progress that will not be displayed in the electronic version of the commentary. It is displayed in blue in Epiphanius, and when the commentary is exported as an RTF file, draft notes are marked with a large, bold **DRAFT** header.

The note window holds the actual text of the note. Here the user simply types the comment into the window and Epiphanius controls the ultimate formatting of the note for both the print and electronic versions. This text is encoded with Unicode, which allows our users to enter, store, and display multiple languages. At present, Epiphanius supports English, French, German, Latin, Greek, and Hebrew. The text is entered using a keyboard mapping that is easy and intuitive to learn. The underlying principle, the additive construction of complex characters, eliminates the need to remember a large number of keyboard entry codes (especially for Greek). Languages can be changed mid-sentence, indeed even mid-word by simply selecting a new language from a pulldown box. This multi-language support extends to all areas of Epiphanius, including bibliographic record entry. Moreover, the user can use any Unicode font installed on the machine for display and output purposes. Since the text is encoded with Unicode, changing fonts does not require the re-keying of previously entered information. Nor does a user have to master new keyboard encodings every time she opts to change a font.

Citations of primary and secondary sources are entered by selecting one of the citation buttons. In both cases the procedure is the same: the user selects an existing citation from the tree-ordered list of citations stored in the system, or the user adds a new citation if a suitable entry is not present.

Once the user has selected the appropriate citation, she types in a reference and then clicks the OK button. The citation then appears as a selectable button in the note window; clicking on this button reopens the citation selection screen, allowing the user to change the citation or alter the reference. It is anticipated that the use of

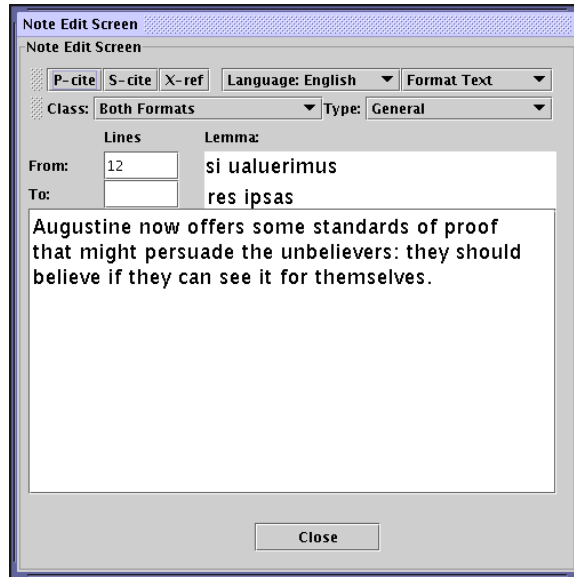


Figure 3: Note Entry Screen

this citation selection system will virtually eliminate the errors that would normally accumulate through typing mistakes.

## Putting It All Together

The preceding discussion has attempted to offer a brief survey of the major features of Epiphanius. As we have seen, Epiphanius standardizes the entry of commentary text and hopefully will reduce the editorial nightmare of synthesizing a project of this scope. Each individual user of Epiphanius will write commentary on his or her own machine. At certain intervals (weekly would be ideal) the users will upload their commentary files to a master database server.

The central database server is the repository for all the project files. Users may check their files in and out of the database server. This library model offers a number of unique advantages, not the least of which is the protection of the commentary files against individual machine failures. The editors will also create HTML pages from the stored files, thereby allowing the public and other commentators the opportunity to view and comment on the work in progress. The backup of the data in the database server will also create a history of the project, allowing future postgraduates the opportunity to go back and reconstruct the development of early 21st-century views on Augustine's *City of God*.

As the project comes to a conclusion, and the commentators supply their final drafts, the editors will use Epiphanius to produce either RTF or LaTeX output suitable for publication in printed form. This process will be governed by a transformation of Epiphanius' XML file using the guidelines established in a style sheet. This final output will incorporate primary and secondary citations and bibliographies that have been checked and are known to be free of error. This material will be passed on to Oxford University Press for eventual publication as a set of printed volumes.

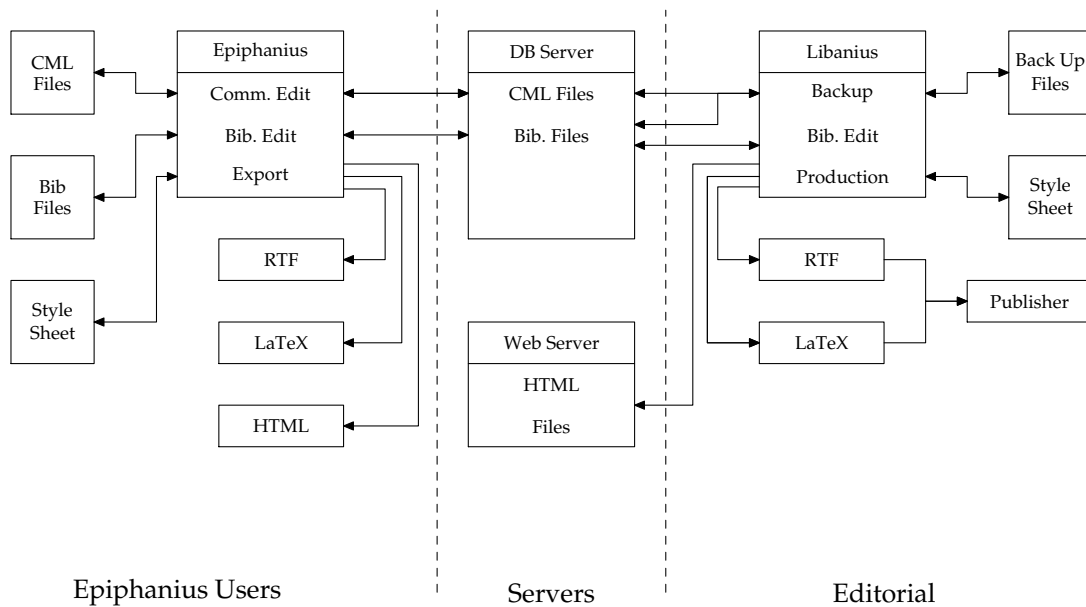


Figure 4: The Epiphanius System

## Other Applications

Epiphanius was designed to meet the unique needs of the *City of God* Commentary project. Yet, it would be easily extendable to writing commentary on other texts. At this point I am working on a new version of Epiphanius which will run as a Java Applet in a web-browser. A new web site ([www.epiphanius.org](http://www.epiphanius.org)) will serve as the access point for this software, and will also be used to host online commentaries created by individual users. Although Epiphanius was originally written for the Augustine *City of God* commentary project, I have designed the software with the idea of making this available for other projects. My personal hope is that eventually we could create a wider user community, working on a variety of texts. In my opinion, Epiphanius lends itself especially well to those texts that are not “commercially viable.” With its ability to create HTML web pages, Epiphanius allows a user to publish texts that may have a smaller audience, in a format that is designed to be universally accessible.