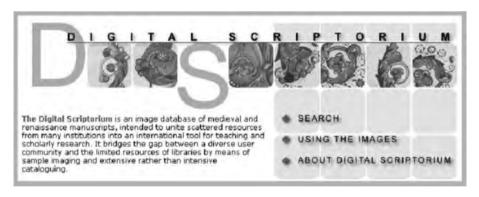Consuelo Dutschke

«DIGITAL SCRIPTORIUM»: TEN YEARS OLD

Mission of the Digital Scriptorium

The *Digital Scriptorium*[1] is an online visual catalogue of medieval and renaissance manuscripts[2], presently in a number of North American repositories [tav. 1]; the end goal is a state-of-the-art fully searchable global database that encourages users to customize their searching, while at the same time absorbing minimal amounts of staffing in the home institutions. Its intent is to represent an ever increasing number of manuscripts, building a context that enriches each single manuscript. DS takes access, knowledge, and visual and statistical study of these primary sources to levels beyond what has ever been possible; more accurate scholarship is the consequence.

The Digital Scriptorium is an image database of medieval and renaissance manuscripts, intended to unite scattered resources from many institutions into an international tool for teaching and scholarly research. It bridges the gap between a diverse user community and the limited resources of libraries by means of sample imaging and extensive rather than intensive cataloguing.

● SEARCH

● USING THE IMAGES

● ABOUT DIGITAL SCRIPTORIUM

Tav. 1

1. Hereafter as "DS." For the website, please see: http://www.scriptorium.columbia.edu.
2. This paper is a revised and expanded version of a talk given at the conference, *Conoscere il manoscritto*, Florence, 29-30 June 2006. I thank Prof. Stefano Zamponi and the able team who ran the conference, especially Dott.ssa Michaelangiola Marchiaro, not only for the initial invitation to

The philosophy implicit in these goals depends upon two statements: that an image carries enormous amount of information; that acceptance of a «tolerable level of misfit» will bring immediate results[3]. The first of these statements makes the image not an adjunct to the catalogue but a vital component; it allows for extensive rather than intensive cataloguing with very brief records that almost serve only as search points in order to find the images. Technology doesn't yet allows us to search on the images directly; we proceed via the words of the descriptive cataloguing. The simplest example of image obviating words is the question of color. In a printed catalogue of medieval manuscripts, it is necessary to state that the initials of a fifteenth century manuscript are in alternating red and blue with penflourishing in the other color; online, such a comment becomes superfluous, in that the user can see for himself the initials with their colors; nor would he ever use the words «red» or «blue» or «other color» in searching because of the potentially vast numbers of hits he would generate. The image has subsumed the function of the words, and the few words that remain must be capable of bearing weight.

Other examples are dealer codes or owner notes on collation: it is difficult to describe verbally such non-texts with sufficient accuracy that they can be recognized in another manuscript. Gothic stamped bindings, plain calf bindings of the eighteenth century, or pastepaper floral endpapers (carta bassanese) are equally problematic. A late French miniaturist in a book of hours, a scribe whose hand deteriorates gradually over the pages of a book, or Petrarch's recognizable manicule (which, I hasten to add, is not to my knowledge present in DS) can't be discussed without images. DS approaches the medieval manuscript in its entirety, as a three-dimensional physical object; thus the necessity for images of these many aspects of the book, and thus the dependency upon the image.

In addition, the number of relatively small collections in the United States (compared to the holdings of the major European libraries), the wide geographical distribution of these libraries, and the lack of a cen-

participate in the conference but also for their support and encouragement in all aspects of the conference and the present proceedings.

3. The phrase «tolerable level of misfit» did not originate with DS, but derives from experimental science in which «level of misfit» refers to the amount of deviance from the norm; with the adjective, «tolerable», it has been in use in the the community of the Text Encoding Initiative, or TEI.

tralized government to coordinate library activity combine to make problematic the production of an American contribution to the international series of catalogues of Dated and Datable Manuscripts. DS, therefore, flags in its cataloguing the dated manuscripts, and begins to fulfill the role of what would have been a printed catalogue with a photographic image of each manuscript. Indeed, DS exceeds the to-date usual Dated and Datable catalogue by provision of multiple images from the same manuscript, and by the fact that the images are in color. It is significant that several recent volumes of the new series of Italian Dated and Datable Manuscripts[4] include CDs with precisely that: multiple images in color of each manuscript.

At the same time, given the costs of digitizing and the limited funds available, DS has chosen to digitize selected images[5] of all manuscripts held by an institution, rather than complete digitization of selected codices. The choice was ultimately dictated by a sense of fairness: it is more fair to give an opportunity of viewing at least partially all manuscripts to all scholars, than to have library staff determine what does matter and what doesn't matter to the entire scholarly community.

The second guiding principle of DS is that a «tolerable level of misfit» with fairly quick results is preferable to perfection with slow results. This is in part dictated by the fact that DS has depended until now on grants from external agencies: with the end of the grant come obligations to deliver what was promised. «Tolerable level of misfit» together with minimal cataloguing has encouraged many libraries to join DS: they may not

4. I refer to vol. 8, of the dated manuscripts of Sicily (2003), vol. 11, of the dated manuscripts of the Classense and other libraries of the province of Ravenna (2004), and vol. 12, of the dated manuscripts of the Fondo Acquisti e Doni and other minor fonds of the Biblioteca Medicea Laurenziana in Florence (2004).

5. The selection of images is intended to represent all stages in the production and life of the codex: all scribes, all levels in the hierarchy of decoration, all miniaturists, the binding, the ownership notes and evidence, the dealer evidence, and so forth, with the intention that a single image can display several of these categories at once. At the same time, to photograph all scribal hands, for example, necessitates prior identification of the divisions between the scribal hands which does not always take place. In practice, at the end of the first phase of DS, a simple comparison of the numbers of manuscript records and of images showed that Berkeley had produced an average of seven images per codex, and Columbia had done six. DS therefore uses this latter number as a calculation device in estimating the number of images that any one institution might contribute; ultimately however it is the holding institution that makes such decisions, ranging per manuscript from one image (usually for an archival document) to 200 (possibly the largest number to date for a single manuscript; the manuscript in question is New York, New York Public Library, NYPL MA 104).

have the inhouse expertise or the funding to devote a long-term effort to their medieval and renaissance manuscripts, but they are convinced that a moderately correct, very short and eventually updatable record, together with images, does lie within their options. Most DS records, therefore, are «legacy data», consisting of information that an institution already has to hand, rather than fresh cataloguing done for this purpose.

It should be said that acceptance of a «tolerable level of misfit» also derives from the position that scholarship on a manuscript is never completed: successive individuals, later ages, new questions will produce newer or better or different responses to the manuscript. A perfect catalogue is not the goal; access to the manuscripts that the catalogue represents is the goal.

GRANT HISTORY

The Andrew W. Mellon Foundation provided the first grant to the idea that was to become Digital Scriptorium; this grant proposal was written in late 1996 by Charles Faulhaber, Director of the Bancroft Library at the University of California, Berkeley as a joint project between two libraries: the Bancroft Library and Columbia University's Rare Book and Manuscript Library. Since then, Digital Scriptorium has received a grant from the Gladys Krieble Delmas Foundation, and two from the National Endowment for the Humanities.

With the second NEH grant (ending 30 June 2007), Digital Scriptorium moved its technology home from Berkeley to Columbia, and accomplished three goals: it expanded content, both bibliographic and photographic; it built an enhanced and strengthened technology base; it set the pieces in place for long-range sustainability.

MOVE TO COLUMBIA; CONTENT

On 15 December 2006, Columbia University Libraries officially launched the enhanced and expanded version of Digital Scriptorium. The database, available at http://www.scriptorium.columbia.edu/, provides significant new searching capabilities that allow for broad as well as guided retrieval of information about content, miniatures, scribes, artists,

provenance, bindings and locations of some 5,300 manuscripts with ca. 24,000 images from 25 institutions.

The manuscript collections currently displayed in Digital Scriptorium are from:

· California State Library, Sacramento/San Francisco
· City College of New York
· Columbia University (all libraries), New York
· Conception Abbey, Missouri
· Fordham University, New York
· Free Library of Philadelphia, Pennsylvania
· Grolier Club, New York
· Harvard University, Massachusetts
· Huntington Library, California
· Jewish Theological Seminary, New York
· Johns Hopkins University, Maryland
· New York Public Library
· Oberlin College, Ohio
· Providence Public Library, Rhode Island
· Rutgers University, New Jersey
· San Francisco State University, California
· University of California, Berkeley (all libraries)
· University of California, Davis
· University of California, Riverside
· University of Kansas
· University of Missouri, Columbia
· University of Notre Dame, Indiana
· University of Pennsylvania
· University of Texas, Austin.

As is clear from the list of participating institutions, DS has made a solid commitment to vary the geographical location of the holding partners and their local user base, from large research library to liberal arts college, from public library to private research foundation, and to work collaboratively with institutions who have large holdings of medieval and renaissance manuscripts and with those whose holdings are much smaller. The commitment represents global reach of DS; it derives from intellectual integrity the researcher wants to discover and view *his* manuscript, no matter where it is held.
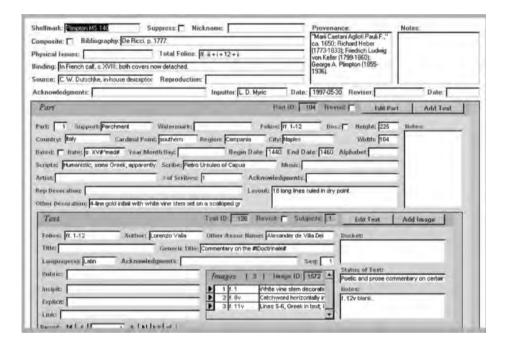
In addition, DS has begun an experimental program for «Umbrella Projects», an innovation (not present on the web at this writing) intended to ensure timely and flexible response to the academic community, by supporting recognizable standards and contributing to the longevity of small scholarly web-based projects. In this experiment, DS will provide hosting, searching and display of bibliographic and photographic data in relevant medieval/renaissance manuscript projects created by individual scholars, with the agreement that the scholar supply descriptions and images according to DS-supported standards. Content building thus occurs not just on a library-by-library basis, but also according to projects reflecting immediate research of individuals: a census of Petrarch manuscripts in the United States; a census of Greek manuscripts in the United States; a project to reunite fragments of manuscripts cut apart by a collector in the 1940s; manuscripts that originated in one European monastery, and so forth. In the present experimental phase, DS is working with the first two and is in conversation with another project; careful examination of costs and results will follow before DS formally adopts the concept.

TECHNOLOGY

The second category is alluded to above in the mention of the new search interface, but because significant technical advances have taken place behind the scenes, it will be useful to begin with those, and then return to DS as researchers experience it on the web.

Two bibliographic description methods are currently in use: one in a specially configured adaptation of Microsoft Access, and the other in prose encoded in a TEI-compliant XML schema. The first, termed DS-Access [tav. 2], ensures parallel gathering of data across the multiple institutions that comprise DS. With the move to Columbia, the database underwent an entire reworking to make it more readily updatable in the future (via transparency in naming conventions), less liable to human error in inputting (via automating features), and far stronger in predicting and tracking workflow patterns (those of the inputter; those of the photographer; those of the technical analyst who will merge data from many institutions). In addition, the database has been compiled into a runtime version to avoid complications of varying versions of Microsoft Access held by the partner institutions.

The very significant revision of the database with its new powerful tools occasioned the writing of a User's Guide to The Database, which together with some reworking of the Data Dictionary (to explain the content intended for each of the database's fields) provide the documentation[6] for a database that is to be used by individuals from many different institutions.

Tav. 2

Once the partners have input the data into their copy of the database, it is passed to the technology center, now at Columbia (but at Berkeley until very recently). The data is converted to XML according to a schema for description of medieval/renaissance manuscripts (compiled by a TEI working group, under the joint chairs, Ambrogio Piazzoni of the Vatican Library, and Consuelo Dutschke, Columbia University) [tav. 3]. Data from

6. The documentation is available on the DS website in the section called "Behind the Scenes"; it is freely viewable at: https://www1.columbia.edu/sec/cu/libraries/bts/digital_scriptorium/technical/ds-access/index.html.

```
<msDescription>
<msIdentifier><idno id="HM1083">HM 1083</idno></msIdentifier>
<msHeading><title type="supplied">BIBLE</title>
<origPlace><country>Italy</country></origPlace>, <origDate notBefore="1200"
notAfter="1250">s. XIII<hi rend="superscript">1</hi></origDate></msHeading>
<msContents>
<overview><p>Bible in the usual order with 66 prologues (of which approx. 2/3 correspond
to those listed in <bibl><ref target="MMBL">Ker, <hi rend="ital">MMBL</hi></ref> 1:96-97
</bibl> regarding <ref><msIdentifier type="cited"><settlement>London, </settlement>
<repository>Lambeth Palace </repository><idno>MS 1364</idno></msIdentifier></ref>); of
the frequent apocryphal additions to Bibles, only the prayer of Solomon is present, but
marked &#x201C;va-cat.&#x201D;</p></overview>
<msItem n="1">1. <locus>ff. 1-257</locus>: <title type="supplied">Old Testament</title>:
<locus>f. 1</locus>, <rubric>Incipit epistola sancti Ieronimi ad paulinum presbiterum de
omnibus divine historie libris</rubric>, <incipit>Frater ambrosius tua michi munuscula
perferens detulit</incipit>&#x2026;, <incipit>Desiderii mei desideratas accepi epistolas
</incipit>&#x2026;[<bibl><ref target="Stegmueller">Stegm&#x00FC;ller</ref> 284, 285
</bibl>]; <locus>f. 3</locus>, Genesis; <locus>f. 16v</locus>, Exodus; <locus>f. 28
</locus>, Leviticus; <locus>f. 36</locus>, Numbers; <locus>f. 47</locus>, Deuteronomy;
<locus>f. 56v</locus>, <incipit>Ihesus filius nave in typum domini</incipit>&#x2026;,
<rubric>Incipit prologus in libro iosue</rubric>, <incipit>Tandem finito penthateuco
moysi velut grandi fenore</incipit>&#x2026;[<bibl><ref target="Stegmueller">
Stegm&#x00FC;ller</ref> 307, 311</bibl>]; <locus>f. 63v</locus>, Judges; <locus>f. 69v
</locus>, Ruth; <locus>f. 70v</locus>, <rubric>Incipit prologus beati ieronimi in libris
regum</rubric>, <incipit>Viginti et duas esse litteras apud hebreos</incipit>&#x2026;[
<bibl><ref target="Stegmueller">Stegm&#x00FC;ller</ref> 323</bibl>]; <locus>f. 102
</locus>, <rubric>Incipit prefatio sancti ieronimi presbiteri in libros paralipomenon
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Tav. 3

three sources – the Census of Petrarch Manuscripts (the most advanced Umbrella Project), the Huntington Library, and Notre Dame – originated as prose, directly encoded via the same XML schema.

The material is merged, and the search engine runs off from this body of material employing an open source software, eXist. This particular XML schema is also used by the Vatican Library and the Parker-on-the-Web project.

DS now has experience in the crosswalk between two data systems (database in Microsoft Access and TEI-compliant encoded prose); in the future it expects to build crosswalks from descriptions of medieval and renaissance manuscripts in MARC format, and those in EAD. The simpler and the less expensive to holding institutions that DS can make the task of providing data to DS, the more readily DS will grow. And expanded content is the most frequent request from DS users.
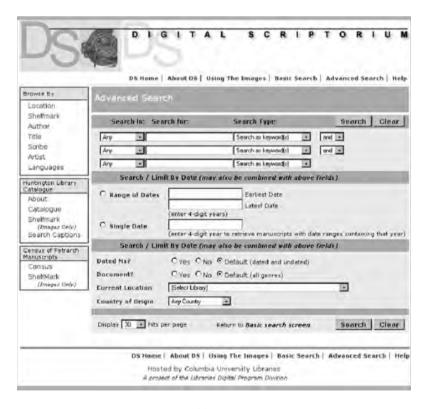
In terms of the quality of its photographic data, DS users are invariably enthusiastic. But behind the scenes, DS work continues to move forward. Currently DS is building a «dark archive» of the TIFF images for the JPEGs now distributed on the web; the purpose is to provide safe storage for the valuable asset that the collected images constitute; in addition, the

collected TIFFS will prove necessary for shifts in future image delivery systems (e.g. JPEG 2000).

On the web, researchers now have multiple means of retrieving manuscripts: by keyword search across the entire compilation of all records in all fields; by shelfmark or call number (with a Browse List to aid the researcher in determining the correct format of a shelfmark); by an Advanced Search that allows for any combination of the following [tav. 4]:

three guided-field searches that can be used in combination (on Shelfmark including a wild card; on Author; on Title; on Docket; on Language; on Provenance; on Binding; on Caption)

· a range of dates
· a single date that lies within any range
· a dated manuscript
· an archival document

Tav. 4

· the country of origin of the manuscript
· the present holding library of the manuscript.

Depending upon the Advanced Search field(s) used, the results display initially in partial format with the searched term highlighted in red; the results can also be reordered from their default presentation (in alphabetical order of the holding library's city, institution, repository and shelfmark) to a presentation in order of date of origin (from the earliest date forward), or to a presentation in order of country of origin (alphabetically). Once the researcher chooses from the interim or partial results the manuscripts of interest, he may click forward either to the full descriptions (and thence to the images), or directly to the images.

To reiterate two points made above: DS is cross-institutional; DS works on the principle of «tolerable level of misfit». The sum adds up to data that doesn't always match as fully as it would in a more controlled environment. For example a country might be called Holland or Low Countries or Netherlands; an author might be termed Albert of Saxony by one institution, Albertus de Saxonia in another, and Albert of Halberstadt in a third. The solution to this lies in equivalency lists behind the scenes (presently under construction), so that no matter which name occurs in the Author Browse List, when the reader clicks on that link, he will be directed to all occurrences of all forms of the name that have been linked to the one chosen «main» or visible form. The presence of seven Browse Lists and two Drop-Down Lists combine to simplify the researcher's task. This is a good example of the invisibility of technology, and of its indispensable presence in the teamwork that makes up DS.

SUSTAINABILITY

The third component of the latest NEH grant, and indeed a component of the first grant (Andrew W. Mellon Foundation, in 1997) involves sustainability. Under this broad term stand issues of technical, administrative and financial nature. The bibliographic and photographic issues described above give DS a solid handle on its current technology; they also position DS to sustain its data into the future with minimal expense to the project, its hosts and its cross-institutional membership.

Sustainability as an administrative issue centers upon the creation of a body of committed institutions that will provide strategic guidance and

direction to DS. Firm steps towards consortial governance began with a meeting of the key stake holders in DS held at Columbia on 30 October 2006. The group discussed the mission of DS and nominated a task force to write the bylaws for a fully collaborative organization. The draft bylaws were written, circulated, revised, and the final draft was submitted to legal counsel at several of the DS partner institutions. Once approved as a structure, the participating institutions will nominate individuals to fill the lowest tier of the governance system; these individuals will elect from their members the people to occupy the upper tiers; the last-named group will be responsible for setting policy, with ratification from the membership.

The intention of the bylaws as drafted is to balance the voices of present and future DS participating institutions with the specific interests of the Managing Host and the Technology Host (which may or may not be the same institution), and to structure the governing body with sufficient agility to allow for ease of motion within a context of responsible action. Currently, Columbia University administers the finances of DS, and provides the development and servicing of its technology.

Financial sustainability as a solid plan awaits the establishment of the governance outlined in the bylaws, and application of the governance structure itself. Nevertheless, in initial conversations in the 30 October DS meeting, it is clear that DS will begin by determining operating costs under a number of scenarios (typically: stasis; minor technology and/or content changes; admission of numerous/large institutions as partners).

In its planning DS distinguishes an immediate future (2 to 5 years), from an expanded future (10 years), and a much longer future (beyond 10 years). With regard to sources of funding, DS is considering several short-term and more permanent income options, in varying proportions and length of overlay. Finally, DS envisions a possible future in cooperation with other projects, the sum of which may prove beneficial to all. Thus, although plans for financial sustainability are in an early phase, they are being addressed concretely and imaginatively.

USER SURVEY

What should be the future of DS? The present ten-year anniversary prompts self-reflection and outreach at the same time. As a first step towards of the issue of long-term sustainability, DS has surveyed its users to

obtain a snapshot of the user community: who are the people who come to DS? how did they discover DS? what questions are they asking, and what answers are they finding? how could DS better respond to their present needs? what might be the needs of the future and can sufficient flexibility be built into DS so that it can adapt to new questions, or itself pose questions as yet unanswerable? Without certain knowledge of user base expectations, DS risks decisions that may alienate the user base, and vitiate DS plans for sustainability.

Three sets of questions in varying formats were asked of three groups of individuals. Prior to and in preparation for the 30 October meeting, a broadly phrased email questionnaire to the DS International Advisory Board produced compelling and occasionally quite complex responses from this tightly formed group of scholars, all of whom work actively in the field of manuscript studies. In a second act of preparation, representatives from DS's institutional members, who often combine in one person the librarian and the medievalist or who may speak solely as librarians, answered a telephone survey of a similar sort. Because the survey was conducted by phone and from a fixed set of questions, this second questionnaire elicited more nuanced and at the same time more controlled answers than the first questionnaire did.

The third effort to canvas users of DS was handled by means of a link on the DS website to a web-based survey; the answers in this case were both statistically quantifiable (when the survey-taker clicked a button to make his choice), and somewhat qualitative (when the survey-taker typed prose into an opinion box). A surprisingly large number of the respondents were willing to forego their anonymity, and reported their names and email addresses, so that they could be contacted later with more comprehensive questions about how DS did or could have had an effect on their scholarship.

With all three sets of questions, respondents essentially supported the present DS work; but they also almost invariably wanted to push DS towards an ever larger mission, in all aspects of its mandate. Citing from the web survey: at the most basic level, about equal percentages of respondents wanted to see either more images per manuscript or more descriptions of manuscripts. In terms of technology, a large group would appreciate the option of readily pulling out from the total number of manuscripts those that contain figural decoration (miniatures, historiated initials, etc.), while a slightly smaller group (37% vs. 44%) want the ability

to compare images side-by-side in a browser window. A small percentage (6%) commented on the complexity of the search mechanism, which dismayed those who are building the present DS; perhaps frequent work on the interface blocks adequate judgment on its transparency or lack thereof. These examples of feedback from the users, together with the longer prose discussions, will serve as foundation to future directions.

In addition to responses from advisors, institutional stake holders and anonymous survey-takers, DS also retains user comments that arrive unsolicited in the Managing Director's inbox. One researcher while in a Paris library recognized the scribe of her home town's manuscript, and was able to call up the images online for direct comparison with the Paris codex. Another scholar, having studied over seventy Italian manuscripts for a particular paleographic feature, found the perfect images in Digital Scriptorium for his printed article. A student writing a paper on the Wheel of Fortune discovered several examples among the images of the Digital Scriptorium partners. A manuscript hitherto unrecognized as a product of the Cistercian house of Pontigny is now assigned to that monastery by a European user. A Ph.D. candidate, looking for a model for tracking his own manuscripts, asked permission to use the DS structure and imaging standards.

Changed Paradigm

From the DS survey, it is clear that most DS users come from academe. Building on that user base, DS is working towards a paradigm shift in the interrelationships among the triad, students+faculty+curators. Traditionally, the categories operate separately: libraries produce formal cataloguing (which in the field of medieval and renaissance manuscripts has until recently been in print format); researchers read the catalogue, work on their chosen manuscripts and publish their findings. Few libraries – notable exceptions are the Bodleian Library, the British Library and the Morgan Library – attempt to track published studies and tie new studies to old descriptions.

Collaboration with academe, however, has been planned since the inception of DS: one field of the Access database is for Acknowledgements to encourage researchers to offer corrections and expansions of DS information with full public recognition on the web well before formal publication of their discovery in book or article format [tav. 5]. The

closed door between the library and the university begins to swing open: the curators and the librarians are willing to publicly put imperfect information in the hands of the researchers, while the professors and the students are willing to share their specialized knowledge with the wider world in a cataloguing format while retaining full credit for their contribution.

With DS, cataloguing also enters the classroom dynamically. In one university, a professor works with his students to help them investigate and catalogue their institution's manuscripts for inclusion in DS; another professor has her students preparing a tutorial website on one certain kind of manuscript using DS images, with the plan that DS will either host the website or link to it. DS supports this direct participation: it is of benefit to the students who are thus contributing to the advancement of knowledge, of benefit to future students who will learn from the tutorial websites, and of benefit to DS in shared work with its constituency.

DIGITAL SCRIPTORIUM

DS Home | About DS | Using The Images | Basic Search | Advanced Search | Help

Berkeley, University of California, The Bancroft Library
UCB 130:ff1400:13   View All Images for this Manuscript (1)

Description: One fragment. — Acquired by the Bancroft Library UC Berkeley from Bernard M. Rosenthal (March 1964). Previous call number ff2MS A2M2 1400:13. — A. C. de la Mare, "M. R. James and a Fragment of Plutarch's Lives," in The Legacy of M. R. James, ed. L. Dennison (Donington 2001) 65-76, esp. fn. 8.
Notes: This is a leaf from Siena, Biblioteca Comunale, L.III.7 which breaks defectively in midway in Book XVII.
Acknowledgments: We thank Dr. A. C. de la Mare for the identification of this leaf.
Number of Parts: 1 — *Number of Images Available:* 1

Part I: f. 1r-v

Place & Date: Italy, s. XV[1]
Description: Parchment; 305 x 260.
Country: Italy   *Cardinal point:*
Region: *City:*
Assigned Date: s. XV[1]   *Searchable Date Range:* 1400-1450
Dated by scribe: No   *Inscribed Date:*
Document: No   *Number of Scribes:* 1
Scribe: Ser Giovanni di Piero da Stia
Script: Humanistic.
Other Decoration: 9-line initial decorated with gold with white vine-stem infilling on square blue ground; headings in red square capitals.
Number of Texts: 1

     Text 1 of 1: f. 1r-v

     Author: Pliny (Gaius Plinius Secundus)
     Title: Historia naturalis
     Status of Text: Most of text of recto effaced by remains of pasted-on paper.

Tav. 5

Experiment with Association fields

As with the Umbrella Projects, the forms of active outreach to the beginning and the expert user just mentioned are experiments; they are attempts to imagine a website that is not simply an online form of something long extant in the print world, but something dynamic and growing, pushing against relations that have been traditional since Gutenberg. Pushing against the nature of the computer and its binary yes/no world are DS efforts toward broad and generic searching. This began in response to users who mourned the loss of serendipitous reading through a manuscript catalogue, only to chance upon something of powerful interest; «this can't happen» they said, «with a computer where you can only look for something specific, not browse for something similar, or chance upon something unusual».

DS is therefore testing the application of a closed list of 72 association fields, with the option of employing up to three for any one text. When operational, the association field «Geographical» might pull up manuscripts of Marco Polo, pilgrimage sites, and portolan atlases; «Women's studies» might be a inputter's choice for a prayerbook with images only of female saints, a pseudo St. Bernard catechizing on the qualities of a good family, a sermon against dancing women, a list of women's names in Latin. At the same time the pseudo St. Bernard might also be associated with «Theological» and «Manualistic» It isn't clear yet if this will prove a fruitful method for a search that approximates the vagueness, the uncertainty and the leaps of connection of a human reading a catalogue; this, too, is an experiment reaching out a bit beyond the known grasp.

Relations with other Projects

To date, relationships between DS and other similar or related projects has been somewhat ad hoc – a situation that will be rectified with a more formal governance structure. The closest fellow over the years has certainly been the Hill Museum and Manuscript Library at St. John's University in Collegeville, Minnesota. Both DS and HMML's EAMMS projects were funded by Mellon Foundation at the same time, with the admonition that the two projects were «joined at the hip»; DS and HMML have continued to talk, to monitor, to compare, to help one

another. The TEI-compliant XML schema used by DS was a product of the EAMMS project[7]; while HMML uses the configuration of Microsoft Access developed by DS, albeit with some in-house modification (to allow for the inputting of Ethiopic). DS, in the person of its Managing Director, Consuelo Dutschke, was an invited member to the two founding conferences of the Roman de la Rose project[8] at Johns Hopkins University (indeed, DS images from Columbia University are upcoming contributions to the Roman de la Rose body of material). Dutschke has also served as consultant to the Parker-on-the-Web project[9] at Corpus Christi College, Cambridge. Neighborly relations with the Morgan Library's medieval curators in New York City, and with the director of the Index of Christian Art[10] at Princeton University keep DS and the Index up to date with one another's imaging standards and cataloguing efforts. In addition, the Advisory Board of Digital Scriptorium informs its members and the DS management of developments across national and disciplinary boundaries. Attendance at conferences is a very useful way to learn of new

7. Three relevant websites for HMML itself, for its EAMMS project (Electronic Access to Medieval Manuscripts), and for the XML schema developed for the EAMMS project are: http://www.hmml.org http://www.hmml.org/eamms/index.html https://www1.columbia.edu/sec/cu/libraries/bts/digital_scriptorium/technical/ds-xml/index,html

The EAMMS project under the direction of Dr. Gregory Pass also developed a MARC application for the description of medieval and renaissance manuscripts, known as AMREMM, an acronym that stands for Ancient, Medieval, Renaissance and Early Modern Manuscripts; it was formally accepted as a standard by the American Library Association and may be purchased from the ALA online bookstore at: http://www.ala.org/ala/acrlbucket/nonserialtitles/descriptivecataloging.html.

8. The project's scope is to put fully digitized and transcribed manuscripts of the Roman de la Rose on the web; of the 325 known manuscripts of this text, the website presently contains six; to view the website, it is necessary to obtain a password (available free of charge); please go to: http://rose.mse.jhu.edu.

The number of Roman de la Rose manuscripts was kindly given to me by Prof. Meradith McMunn; her extensive research on this body of material will soon be available in her book, *The Illustrated Manuscripts of the Roman de la Rose. Catalogue and Study* (Turnhout: Brepols, forthcoming).

9. This project, shared jointly by Stanford University in Palo Alto, California and by Corpus Christi College in Cambridge, is cataloguing (from the basis of M. R. James' catalogue) and digitizing the entire holdings of that college's Parker Library; current bibliography is added to the record, with the intention of maintaining up-to-date bibliography in the future. Upon registering (free of charge), the user may view a prototype of the project at: http://parkerweb.stanford.edu.

10. The Index of Christian Art, founded in 1917 well before the existence of the internet, has been actively working towards a web presence under the able direction of its current director, Dr. Colum Hourihane; in the context of this paper, it is of interest because via a significant grant from the Homeland Foundation, the Index has been photographing and cataloguing according to the Iconclass system the medieval manuscripts of the J. Pierpont Morgan Library and Museum. The online Index is available through institutional and individual subscription; for further information, please see: http://ica.princeton.edu.

projects and new developments of know projects; it builds bridges between the people involved so that open conversation continues.

DS's most formal relationship has been with the Manuscript Group of the Consortium of European Research Libraries, helping to consider issues, vet outside vendors, and supply a body of material (Columbia's descriptions in Microsoft Access) as one of the several testbeds for cross-database searching, via a portal system[11]. As DS has already begun active collaboration with small projects (via the Umbrella system), it is equally appreciative of the value that collaboration with large projects brings to scholarship, to longevity and very basically to the finances of all involved.

THE FUTURE

DS faces two immediate challenges, the first of which is well on its way to resolution: a governance structure and consequently a governing body. Once that group is in place, two further and significantly larger challenges will present themselves: directions for continued growth and financial stability. In cooperation with the Management Host and the Technology Host (as mentioned above, such functions are presently shouldered by Columbia University), the DS governing body can begin to plan. These are challenges that at the beginning of the project were not even a twinkle in the eye of the project's initiators. DS hopes that, proud as it is of the accomplishments of its first ten years, its second ten years will bring movement and innovations to magnificently surpass present achievements.

11. Description of the aims of this subgroup of CERL and a first view of the portal are available at: http/77www.cerl.org/Manuscripts/CERL%20Portal.htm.