Knowledge Representation and Organization in the Iter Project: A Web-Based Digital Library for Scholars of the Middle Ages and Renaissance (http://iter.utoronto.ca)

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ABSTRACT: The Iter Project ("iter" means "path" or "journey" in Latin) is an internationally supported non-profit research project created with the objective of providing electronic access to all kinds and formats of materials that relate to the Middle Ages and Renaissance (400-1700) and that were published between 1700 and the present. Knowledge representation and organization decisions for the Project were influenced by its potential international clientele of scholarly users, and these decisions illustrate the importance and efficacy of collaboration between specialized users and information professionals. The paper outlines the scholarly principles and information goals of the Project and describes in detail the methodology developed to provide reliable and consistent knowledge representation and organization for one component of the Project, the Iter Bibliography. Examples of fully catalogued records for the Iter Bibliography are included.

1. The Iter Project: Background and Development

The literature of the information professions has generally characterized scholars in the humanities as somewhat reluctant to use new information technologies (e.g., Wiberley and Jones 2000) but also as enthusiastic learners who are willing to embrace technology when it can be shown to be helpful in their pursuit of knowledge (e.g., Bates, Wilde and Siegfried 1995). This paper describes an electronic information project for scholars and students of the Middle Ages and Renaissance that was initiated by the scholars themselves. In this case, a collaboratively designed and implemented project for all kinds and formats of materials concerning the Middle Ages and Renaissance (defined as the period from 400 to 1700) was driven by the scholars' own perceived need for globally accessible web-based electronic resources and services. Information professionals were recruited to advise upon and oversee the knowledge representation and organization tasks of the Iter Project and also to take their place as equal partners in the direction and development of the Iter Project as a whole. The initiative taken by Medieval and Renaissance scholars has had implications for the evolution of the Project and illustrates the importance of the involvement of users in the design and implementation of information resources and services. This paper emphasizes both the formative influence of the scholars and students who are the specialist users for the knowledge representation and organization aspects of the Project and also the high quality of the records that have resulted from the influence of information professionals in the decision-making process.

The Iter Project originated in 1994 when the Renaissance Society of America (RSA) in New York City

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began discussions with the Centre for Reformation and Renaissance Studies (CRRS) at the University of Toronto, Ontario, Canada, about developing an online bibliography for journal articles about the Renaissance. Existing commercial bibliographies for the period were generally out-of-date, expensive, uneven in coverage, had limited subject indexing, and often depended on volunteers to identify and index relevant materials. These tools were also available only in print form or occasionally on CD-ROM.

The Iter Project began with the development of a bibliography for Renaissance Studies, at that time defined as study of the period from 1300 to 1700. Graduate Renaissance students were hired to enter bibliographic data using EndNote Plus (1988-) software on laptops in the library stacks at the University of Toronto. These students went through issues of appropriate journals from cover to cover, and the records they created were available online locally, but no subject access was provided and no authority work was done. In addition, it became clear that eventually the number of records in the bibliography would exceed the capacity of EndNote Plus (1988). In 1996, the Arizona Center for Medieval and Renaissance Studies (ACMRS) at the State University of Arizona, at Tempe, U.S.A., joined the Project, and its graduate Renaissance students began to record bibliographic data for a different set of journals.

A grant from the Andrew W. Mellon Foundation in New York City enabled the three partners to expand the Project, and a pilot project to investigate information standards for Iter was begun at the Faculty of Information Studies (FIS), University of Toronto. Masters students at FIS were hired for this phase of the work under the direction of the Project Manager. In 1996, FIS and the John P. Robarts Research Library and its Information Technology Section (ITS), University of Toronto, joined the Iter Project as the fourth and fifth partners. All five partners are equally represented at executive board meetings, and further foundation grants and support from the five partners provided initial and ongoing funding. Currently, individual and institutional subscriptions are provided at low cost. When the Project becomes self-supporting, any profits will be used to expand and enhance its various aspects. The overall day-to-day management of the Iter Project is undertaken by the Project Director and by the Project Manager, and different aspects of the Project are housed at various locations at the University of Toronto. Recently, the Sixteenth Century Studies Conference (SCSC) and the Medieval Academy of America (MAA) became affiliates of the Iter Project. Future plans for the Project as a whole are described in Bowen (2000).

The major goal of the Iter Project is to provide international, inexpensive, up-to-date, high quality, web-based access to all kinds of resources for scholars and future scholars of the period from 400 to 1700 in print or in electronic form. In effect, the Project aspires to develop a digital library for information about the Medieval and Renaissance periods. To this end, three sub-goals were identified:

1) use international record and cataloguing standards. This high standard for information representation and organization systems was necessary so that scholars and students all over the world could benefit from the Project.
2) provide comprehensive coverage of print and electronic resources published between 1700 and the present. Users could then be certain that no gaps in coverage existed and feel confident that all relevant materials had been identified.
3) involve graduate students in creating and maintaining the records. This procedure ensured that students benefited by engaging in work that would be relevant to their future careers. Initially, this third sub-goal was established for students of the Middle Ages and Renaissance, but, as the Project evolved, students in Information Studies were also included in this objective.

2. Iter Bibliography: Knowledge Representation and Organization

The first task of the Iter Project was the further development and expansion of the online Iter Bibliography with which the Project began and which remains its centrepiece. Knowledge representation and organization decisions for the Bibliography were taken by the five partners on the basis of the 1996 pilot study, and these were designed to further the three Project sub-goals described above. The knowledge representation and organization requirements of resources planned beyond the original Bibliography were also considered. In all deliberations, the foundation of the Project in user warrant (e.g., Albrechtsen and Jacob, 1998; Fraser, 1978) was emphasized. The Bibliography is mounted on DRA's WebZ at the John P. Robarts Research Library ITS and can be searched using options supported by WebZ such as keywords in titles. Thus, information representation and or-

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ganization decisions were designed to augment these basic search options.

2.1 The Iter Bibliography: Information Characteristics, Goals, and Standards

Structure and content decisions for the Bibliography were influenced by some of the special characteristics of humanities literatures in general and of the literature of the Middle Ages and Renaissance in particular. First, abstracts are not routinely provided for humanities journal articles and an article title does not necessarily describe its content directly or concretely. In addition, different kinds of materials in many languages will eventually be provided, and, further, expressions from more than one language may occur in any one title or record. These characteristics mean that keyword searching of titles (and abstracts, if they exist) is likely to result in high recall and low precision, with many false drops and failures to retrieve relevant items (examples in Appendix 1). Second, during the relevant period, the spelling of many languages was not regularized, and these variations in spelling often occur in articles and other materials. For efficient information retrieval with high precision, therefore, personal, corporate and geographic names would need to be standardized (example in Appendix 2). In this way, the needs of Medieval and Renaissance scholars were established as the major goal and the three sub-goals of the Bibliography, and the expertise of information workers was enlisted to help address the specific characteristics of humanities literatures to ensure the excellence of information representation and organization in the records.

2.11 Choice of Standards for Record Format, Cataloguing, and Subject Access

In the 1996 pilot project at FIS, the general criteria for choice of record format, descriptive cataloguing and subject access systems were determined to be: 1) international acceptance and availability of the system; 2) the system's ability to specify complex information; 3) its regular updating and maintenance; 4) its familiarity to the scholars and students who would be using it and working with it; and 5) its ability to join the other chosen standards in creating reliable, consistent records. These criteria were derived from the three sub-goals of the Project and articulated these goals in relation to the information format and content of the bibliographic records. The reasons for the choice of each standard are discussed below, and some of the procedures for implementing them are outlined. Currently, there are about 350,000 records in the Iter Bibliography and about 20,000 of these have received full descriptive and subject cataloguing, as described below.

2.111 Record Format

The MARC (MAchine Readable Cataloguing) format was chosen for the Iter Bibliography because MARC is used by many national, academic and special libraries with relevant materials throughout the world. For this reason, use of the MARC format increases the number of Medieval and Renaissance scholars and students who can easily access the Bibliography through their libraries. The MARC monograph format was slightly modified for the purposes of the Journal Bibliography and is also used without modification for the Iter Book Bibliography that is under construction. In addition, MARC formats for different kinds of materials will eventually allow extensive record sharing and useful integration of records for different kinds of information resources. For example, the MARC format APPM (Archives, Personal Papers and Manuscripts) is appropriate for recording data from manuscript repositories about individual manuscripts and collections of manuscripts. Complete examples of the use of the APPM format appear in Mayo (1991) with discussion of its strengths and limitations. *Iter Italicum: A Finding List of Uncatalogued or Incompletely Catalogued Humanistic Manuscripts of the Renaissance in Italian and Other Libraries* (Kristeller, 1963-) is now available on the Iter site through an arrangement with the publisher of the CD-ROM version (Kristeller, 1995), and a study to determine the usefulness of APPM for this and other future manuscript finding lists is contemplated.

2.112 Descriptive Cataloguing and Name Authorities

The *Anglo-American Cataloguing Rules* (AACR2r) (1998) is used in the Iter Bibliography for the bibliographic description of journal articles and books and may eventually be used for other kinds of materials. AACR2r was chosen because it is a widely used standard of representational consistency for bibliographic descriptions for various kinds of materials, and AACR2r-based descriptions are therefore familiar to many scholars and students of the Middle Ages and

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Renaissance. AACR2r is regularly maintained and updated, and it can accommodate complex information. For the same reasons, AACR2r is also used for establishing the authoritative forms of various kinds of names. When possible, the forms of names are verified against the Library of Congress authority files (LCAUTH). Like the use of the MARC format, the use of AACR2r simplifies eventual record-sharing, integration and consistency of records in the various databases as they become available in the Iter Project. This kind of integration encourages cross-database searching and accustoms scholars and students to standardized forms of descriptive information.

2.113 Subject Access

Discussion of subject access for the Bibliography initially centred on the development of a special subject access system for Middle Ages and Renaissance materials. It became clear, however, that no existing thesaurus or special classification system would be adequate to meet the criteria described above and that developing a special system would be expensive and time-consuming both to create at the beginning and to update and maintain later. In addition, a new system would be unfamiliar to the scholars and students who would be using it for information retrieval. Further deliberation revealed that what was needed was a general system for all knowledge because any topic or issue could be studied as it occurred during the relevant time period. Scientific/technical topics (e.g., medicine, navigation, astronomy, map-making), social topics (e.g., religion, etiquette, child-rearing, demographics), and humanities topics (e.g., drawing, music, design, poetry) would all need to be included to provide comprehensive and adequately specific subject access. In effect, it was realized that the period of the Middle Ages and Renaissance needed to be treated simply as a chronological era during which anything can be studied, rather than as a discrete subject area.

Eventually, the abridged *Dewey Decimal Classification* (DDC) (1997) and the *Library of Congress Subject Headings* (LCSH) (2000), including its *Subject Cataloging Manual: Subject Headings* (SCM) (1997-), were both chosen to provide complementary subject access points for the Iter Bibliography. Both systems are knowledge organization systems for the whole range of human knowledge, both are consistently maintained and updated, and both include extensive scope notes and other instructions and/or manuals to increase consistency of application. They can accommodate complex subject statements and both are provided for in the MARC formats. Both, however, were developed for books, not journal articles, and it was anticipated that their subject expressions might sometimes be less specific than necessary for the topics of journal articles. In addition, taken singly, neither one was completely appropriate to meet the criteria for subject access that had been set out, as discussed above. LCSH has not been officially translated into a language other than English and is primarily used in North America, so LCSH headings alone would be inappropriate for international users. DDC is the most widely used bibliographic classification system in the world, it is available in official translations in a number of languages, and its numeric notations are language-independent. Few users, however, are familiar with database searching using notations, and technical problems for direct notational searching still exist in many systems. Currently, direct notational searching of the Iter Bibliography is limited by technical considerations, but notations are added to records in anticipation of future developments. Notations are linked so that clicking on one will produce all the records that have been assigned that notation. Investigations for future uses of DDC notations in the Iter Bibliography are being carried out with OCLC in Dublin, Ohio, USA, which owns DDC.

Using both LCSH headings and DDC notations, then, provides complementary alphabetic and classified access to the records. LCSH headings provide linguistic access to the records, and the presence of DDC notations facilitates search narrowing within the correct discipline. Multiple headings and multiple notations are both provided as appropriate for each record (Appendix 3, all examples). Multiple DDC notations are possible because the notations in a bibliography do not have to act as a shelf address as they do in a library catalogue. For the same reason, it is not necessary to choose among the various options available in DDC because more than one notation can be chosen. For example, two notations can be provided in a record for an article containing a bibliography of books about Spain and Portugal during the Renaissance: 016.946 [bibliography on special subjects, Iberian peninsula] and 946.0016 [history of the Iberian Peninsula, bibliography]. Classified bibliographies using various classification systems do not always take advantage of these characteristics (e.g., *Canadiana*, 1950-). In general, the use of both LCSH and DDC creates what is in effect both a classified bibliography and a subject heading bibliography with multiple access points of

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both types. Use of these two complementary subject systems increases the power with which the database can be searched by subject.

Two kinds of modifications have been made to take into account the special needs of Middle Ages and Renaissance scholars and students. First, chronological and time-period subdivisions in both LCSH and DDC are not necessarily precise enough for scholarly access to journal articles. To address this potential problem, the Time Period of Content (045) MARC field is used to specify the exact time period covered in the journal article (Appendix 3, all examples). For the same reason, LCSH and DDC time periods are not always used as established by the tools. Second, LCSH may not include (either as used headings or as references to used headings) specialized terminology that scholars of the period would expect to be able to search and/or that is more specific than would probably be necessary for the topic of an entire book. For this reason, a field for "Uncontrolled keywords" is provided when necessary, using only the special terms that occur in a particular journal article (Appendix 3, examples 2 and 7). No attempt is made to standardize these keywords. Specific procedures for analyzing article subjects and for choosing subject access points from LCSH and DDC for the Iter Bibliography are discussed below.

2.12 Comprehensive Coverage

Comprehensive coverage of journals is provided by entering basic bibliographic data for the entire content of an entire run of a period-specific journal and for the appropriate content of journals that occasionally publish materials for the relevant period. For example, *The English Harpsichord Magazine and Early Keyboard Instrument Review* is a period-specific journal that is covered from volume 1, 1973, and *The Harvard Theological Review* is a general journal that is covered from volume 1, 1908. Currently, complete runs of about 550 journals are included in the Bibliography. In addition to comprehensive coverage of Medieval and Renaissance research materials, the Iter Project also provides three directories for the period. First, the *International Directory of Scholars* (IDS) contains information about members of the RSA and of the SCSC and is updated periodically. Second, the directory of *Scholars of Early Modern Studies*, is a directory edition of the journal *Scholars of Early Modern Studies* (v. 34, summer 2000). Contact information and descriptions of the research interests of the scholars are included in both directories, and the relevant resources of their institutions are described. Third, the *International Directory of Renaissance and Reformation Associations and Institutions* (IDRRAI) describes scholarly groups and organizations. With the information in these three directories, Medieval and Renaissance scholars and students can contact others with their specific interests and find institutions that have the special research resources that they need.

The goal of comprehensiveness means that, like a traditional paper-based library, the Iter Project's digital library will continue to add materials and resources indefinitely. All formats and kinds of materials in any language available from 1700 to the present that pertain to the period 400 to 1700 will be made electronically accessible. For example, *Baptisteria Sacra: An Iconographic Index of Baptismal Fonts*, which provides detailed descriptions and photographs of fonts from the early Christian period to 1700, is under construction and its homepage can be viewed from the main Iter website. Images of fonts are indexed with strings derived from the notations of the ICONCLASS classification system for iconographic images, research and documentation (accessible at <http://www.iconclass.nl/>). Other specialized databases are under construction for inclusion in the Iter Project. For example, *Milton: A Bibliography for the Years 1624-1700* (Shawcross, 1984) will be available in 2002 in cooperation with the Medieval and Renaissance Text Society (MRTS) at ACMRS. Similar relationships with other projects for the period are being established.

2.13 Middle Ages and Renaissance Students and Information Studies Students

The scholarly originators of the Iter Project wanted to involve graduate students in both the scholarly and the technical aspects of the work. This involvement contributes to the education of future scholars in the Middle Ages and Renaissance by familiarizing them both with the literatures in their research areas and with the information technologies that are becoming indispensable for all scholarly work. When information educators at FIS joined the Project, graduate students and graduates of Information Studies programs were included in this strategy. The Project thus gives the student employees from both fields invaluable direct professional experience.

Students in both fields contribute to the creation and maintenance of records for the Iter Bibliography

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and confer with each other on the processes and procedures of the work, often using the Local Notes (590) field of the MARC format, which cannot be viewed by users, for this purpose. The procedures that were originally worked out for bibliographic data management of the Iter Bibliography are described in Castell (1997), and these procedures have steadily evolved as the Project has matured. In general, Middle Ages and Renaissance students enter basic bibliographic data (e.g., author, title, source, language, pagination) for all the relevant contents of the various journals into laptops in their libraries in Toronto and Tempe. The bibliographic data also include notes on specific aspects of the content of each article (Appendix 3, examples 1, 2, 3, 4, 5 and 7). When necessary, alternative volume and issue numbering sequences are provided (Appendix 3, examples 3 and 6). A special template using EndNote Plus (1988 –) software has been developed to receive the basic bibliographic data, and guidelines for entry have been developed to ensure consistency. Information professionals on the Iter permanent staff provide intensive training sessions on the template and guidelines for the Middle Ages and Renaissance students. After the data are collected, they are ftp-ed to the Iter offices at FIS and converted to MARC format using Data Magician (1994) software. Information Studies students who have studied original cataloguing then proofread and revise the bibliographic data to conform to AACR2r. These basic MARC records are entered in the database for immediate use. They provide strong standardized foundation records which can be used as a central record from which to expand.

Subject access is provided with a similar collaborative process. Usually, both the analysis of the subject of a document and the translation of the analysis into subject access points are performed by the same person. For the Iter Bibliography, however, advanced Middle Ages and Renaissance students (called "subject specialists") perform subject analysis on a journal article, and subject cataloguers (called "information specialists") translate that subject analysis into subject access points in LCSH and DDC. Subject specialists work in the stacks in Toronto and Tempe and information specialists work in their quarters in the John P. Robarts Research Library in Toronto. Subject specialists are intensively trained over several days to do subject analysis by the subject cataloguers on the Iter permanent staff using the *Iter Manual for Subject Specialists* (Manual) (2001) and *Subdivisions Lists for Iter Subject Analysis* (List) (2001). These internal publications have been developed to produce consistent subject analysis that information specialists can use for translation into the two subject access tools.

Completed subject analysis has three parts: 1) a sentence that describes the general topic of the article; 2) a time period; and 3) headings. The descriptive sentence summarizes the topic of the article and provides information specialists with a general context to use in the assignment of subject access points, e.g.,

> Author claims to present a more even-handed, eclectic, and "de-totalized" account of historical and literary nuns in the age of Chaucer (who are often considered through modern sensibilities as less than pious or even pathetic) to argue that Chaucer based his Prioress on fact and that she is actually characterized as a religious superior who is very attentive to religious duties and to external decorum and whose sympathies extend to the humblest of God's creatures.

A time period that covers the entire article is used and can be a single year or a range of years. When more than one time period occurs in an article, these are merged and become a range of years. For example, if the time periods discussed in an article are "1215-1220" and "1347-1586", the time period is entered in the Time Period of Content (045) MARC field as "1215-1586". For some articles, part of the time range covered falls outside the 400 to 1700 mandate of Iter (Appendix 3, examples 1 and 7), but the article is added to the database in order to fulfil the criterion of comprehensiveness.

Headings provided by subject specialists are structured as if they were LCSH headings, but they are highly abbreviated and contain explanatory elements in square brackets. The headings consist of an obligatory main subject and optional geographic and/or optional topical subdivisions. Some subdivisions are suggested in the List, but subject specialists may propose other subdivisions if they are needed to explain the content of the article. An example of a subject specialist's suggested headings for one article follows:

> English Civil War [war between Parliamentary forces and supporters of Charles I, 1641-1649]—religious aspects.
> English Civil War—political aspects.
> Irish Rebellion of 1641—influence [on English Civil War].

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Charles I—political activity [during English Civil War].
England—public opinion [of Irish political and religious instability].
Foxe, John [English religious author, fl. 1563]—Book of Martyrs [collection of life stories of Christian martyrs, 1563]—influence [on English political opinion about Ireland].
Catholic church—England—public opinion [in relation to the threat to England of Catholics, notably Irish Caholics].

The material in square brackets is needed by information specialists who are not necessarily informed about the factual aspects of the article's content and who do not have the article in front of them when translating the subject analysis into LCSH and DDC. Other kinds of information that would appear in square brackets are the description and shelfmark of a manuscript or a translation of obscure terminology in a language other than English.

The fully developed subject analysis for one article appears below. The complete record for the article appears in Appendix 3 (example 1).

Sentence: This article discusses the English flower border, and the considerable French influence upon it, particularly by A.-J. Dézallier d'Argenville [1680-1765], author of *La Théorie et la pratique du jardinage*; by the beginning of the eighteenth century, the French habit of changing the border completely every season was giving way to an English tendency to combine all three seasons into one planting plan.
Time period: 1660-1735
Headings: Dézallier d'Argenville, A.-J.[1680-1765]—*La Théorie et la pratique du jardinage*—influence (on English flower borders)
flower borders—England—French influences
flower borders—England—planting plans
flower borders—England—seasonality
flower borders—France—seasonality

Taken together, the three elements of subject analysis provide enough information for information specialists to complete translation of the article's content into LCSH and DDC. This collaboration among students of the Middle Ages and Renaissance and of Information Studies students and graduates produces an excellent record with powerful searching options and, in addition, fulfils the goal of furthering the education of students in the two fields. Further explanation and examples of the subject analysis and translation process appear in Beghtol (2002).

3. Conclusion

Scholarly interest in providing electronic access to materials of and about the Middle Ages and Renaissance is high, and a number of important projects exist (e.g., the *Medici Archive Project* accessible at <http://www.medici.org> and the *Medieval Feminist Index* accessible at <http://www.haverford.edu/library/reference/mschaus/mfi/mfi.html>). The Iter Project seeks to provide up-to-date, comprehensive, internationally accessible electronic access to these materials by the creation of a digital library that provides an integrated gateway to all kinds and formats of scholarly resources. The foundation of the Project in user warrant required careful establishment of Project criteria and required special methodologies for creating excellent records with comprehensive and detailed knowledge representation and organization provisions. Extensive collaboration between scholarly users and information professionals has given participants in the Iter Project a unique perspective as well as the experience of collaborative work with an invaluable combination of different areas of expertise. In particular, the cooperation between Information Studies and Middle Ages and Renaissance students in the descriptive and subject cataloguing processes, as exemplified in the procedures for the Iter Bibliography, give future scholars and information professionals valuable insights into the information representation and organization concerns and priorities of a completely different field. The ongoing teamwork that takes place among all the partners of the Iter Project positions it as an excellent model project for future scholarly endeavours of its kind.

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Appendix 1:

Examples of journal article titles from the Iter Bibliography for which keyword searches would probably not produce appropriate results. Note variations in the form of dates, multiple languages, the spelling of "Shakespeare", the treatment of quotations, and non-informative terminology

A serendipitous encounter with St. Kilian.

Boethius, *Boece*, and Boötes: a note on the chronology of Chaucer's astronomical learning.

De l'excrément à l'or: l'anthropologie des noms attribués aux ânes de l'époque romaines à William Shakespeare

Éloge de la grenouille: le paysage dans les jardins à la françiase au XVIIIème siècle.

Formación del pensamiento critico-literario en Hispanoamérica: época colonial

Gardening, diet and "improvement" in later seventeenth-century Ireland.

"Her eyes became two spouts": classical antecedents of Renaissance laments.

Il Sacro Bosco di Bomarzo. Its 16th-century literary and antiquarian context.

Letter from Italy.

L'edizione del 1584 dei «Commentarii» di Pio II e la duplice revisione di Francesco Bandini (analisi del libro primo)

Miscellanea curiositae Michelangelae: a steep tariff, a half dozen horses, and yards of taffeta.

New learning and broken friendship.

Riquet à la houppe: conteur, conteuse.

Some further Shakspere allusions or parallels

Tell me where is fancy bred, or in Shakespeare or in the Lambs?

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The cipher inscription on the monument of William Shake-Speare at Stratford-on-Avon
Traethodau ymchwil ar astudiaethau Cymreig
Welsh gardens in art to c. 1850

Appendix 2:
References to the established name heading "Shakespeare, William, 1564-1616 "
(University of Toronto Catalogue Database, 2001)

Shakspeare, William, 1564-1616
Saixper, Gouilliam, 1564-1616
Shakspere, William, 1564-1616
Shikisbir, Wilyam, 1564-1616
Szekspir, William, 1564-1616
Sakesspyras, 1564-1616
Shekspir, Vil'iam, 1564-1616
Sekspir, Viljem, 1564-1616
Tsikinya-chaka, 1564-1616
Sha-shih-pi-ya, 1564-1616
Shashibiya, 1564-1616
Shekspir, Viljam, 1564-1616
Shakspir, Vilyam, 1564-1616
Syeiksup'io, 1564-1616
Shekspir, V. (Vil'iam), 1564-1616
Shakespeare, Guglielmo, 1564-1616
Shake-speare, William, 1564-1616
Sha-o, 1564-1616
Sekspir, 1564-1616

Appendix 3:
These examples illustrate the subject cataloguing decisions and procedures discussed above. They are alphabetized by article title. Phrases in square brackets after DDC notations do not appear in the database but are included here for clarity.

Example 1:

Title:	"A cloth of tissue of divers colours": The English flower border, 1660-1735 [article]
Author:	Laird, Mark
Add'l contributors:	Harvey, John H.
Journal/Series:	Garden history, vol. 21, no. 2 (1993)
Description:	p. 158-179
Language:	English
Notes:	Includes illustrations and appendices.
Time Period:	1660-1735
Subject Headings:	Garden borders—History—17th century—England. Garden borders—History—18th century—England. Flower gardening—History—England. Planting design—History—England. Garden borders—Influence—France. Dézallier d'Argenville, A.J. (Antoine-Joseph), 1680-1765. Théorie et la pratique du jardinage. Dézallier d'Argenville, A.J. (Antoine-Joseph), 1680-1765—Influence.
Dewey Nos.:	635.90942 [flowers and ornamental plants, England] 635.90944 [flowers and ornamental plants, France]

Example 2:

Title:	Around the performance of a 13th-century motet [article]
Author:	Page, Christopher
Journal/Series:	Early music, vol. 18, no. 3 (2000)
Description:	p. 343-357
Language:	English
Notes:	Includes music: facsimile and modern notation.
Time Period:	1226-1300
Subject Headings:	Clayette Manuscript. Motets. Performance practice (Music).
Unc'd Keywords:	Motet pastourelle.
Dewey Nos.:	782.4 [secular forms of vocal music]

Example 3:

Title:	Estudio de algunos materiales pictóricos utilizados por Zuccaro en las obras de San Lorenzo de El Escorial [article]
Author:	Bruquetas Galán, Rocío
Add'l contributors:	Presa Cuesta, Marta
Journal/Series:	Archivo español de arte, vol. 70, alt. no. 278 (1997)
Description:	p. 163-176
Language:	Spanish
Notes:	Includes abstract in English. Includes appendix and facsimile.
Time Period:	1554-1654
Subject Headings:	Pigments—History—16th century. Zuccari, Federico, 1542 or 3-1609—Correspondence. Escorial. Church decoration and ornament—Spain—History—16th century.
Dewey Nos.:	547.09 [historical treatment of organic chemistry] 667.09 [historical treatment of cleaning, coloring, coating, and related technologies] 726.028 [apparatus, equipment, materials of church buildings] 726.0946 [church buildings, Spain] 729.028 [apparatus, equipment, techniques of design and decoration of structures and accessories]

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Example 4:

Title:	Family allegiance and religious persuasion: the lesser nobility and the Revolt of the Netherlands [article]
Author:	Wyntjes, Sherrin Marshall
Journal/Series:	The sixteenth century journal, vol. 12, no. 2 (1981)
Description:	p. 43-60
Language:	English
Notes:	Contains an index with the 186 participants, their allegiances and punishment.
Time Period:	1565-1567
Subject Headings:	Dissenters—Netherlands—Political activity. Netherlands—Foreign relations—1556-1648. Netherlands—Foreign relations—Spain. Netherlands—History—Wars of Independence, 1556-1648. Netherlands—Military relations—Spain. Spain—Foreign relations—1556-1598. Spain—Foreign relations—Netherlands. Spain—Military relations—Netherlands.
Dewey Nos.:	949.2 [history of the Netherlands]

Example 5:

Title:	Focquet's list: translation and comments on the colour "blue sky after rain" [article]
Author:	Curtis, Emily Byrne
Journal/Series:	Journal of glass studies, vol. 41 (1999)
Description:	p. 147-152
Language:	English
Notes:	Includes illustration and facsimiles.
Time Period:	0953-1911
Subject Headings:	Glassware industry—Economic aspects—China. Glassware industry—China—History. China—Foreign relations—Portugal. Portugal—Foreign relations—China. Glassware—China—European influences. Europe—Commerce—China. Glass, Colored—China—History—Ming-Qing dynastics, 1368-1912. Foucquet, Jean-Françoise, 1665-1741—Relations with Chinese. Glass trade—China—History.
Dewey Nos.:	748.2028 [techniques, processes, apparatus, equipment, materials of glassware] 748.2951 [glassware, China]

Example 6:

Title:	New learning and broken friendship [article]
Author:	Brigden, Susan
Add'l contributors:	Wilson, Nigel
Journal/Series:	The English historical review, vol. 112, alt. no. 446 (1997)
Description:	p. 396-411
Language:	English
Time Period:	1531-1546
Subject Headings:	Prestwich, James, fl. 1532-1546—Career in teaching. Prestwich, James, fl. 1532-1546—Political activity. Aristocracy (Social class). Catholics—England—History—16th century. Children of the rich—Education—England—History—16th century. Heresy. Religion and politics—England—History—16th century. Great Britain—History—Henry VIII, 1509-1547. Great Britain—Politics and government—1509-1547.
Dewey Nos.:	273 [doctrinal controversies and heresies in general church history] 305.50942 [social classes, England] 371.826 [education of students by social and economic characteristics] 942.05 [history of England, Tudor period]

Example 7:

Title:	The place of analytical fieldwork in garden archaeology [article]
Author:	Taylor, Christopher
Journal/Series:	Journal of garden history, vol. 17, no. 1 (1997)
Description:	p. 18-25
Language:	English
Notes:	Includes illustrations.
Time Period:	1316-1950
Subject Headings:	Garden archaeology—Methodology. Archaeology—Methodology. Gardens—England. Earthworks (Archaeology)—England.
Unc'd Keywords:	Relict gardens; abandoned gardens; field archaeology.
Dewey Nos.:	635.0942 [garden crops, England] 712.0942 [landscape architecture, landscape design, England]

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