The Image as Document: Descriptive Programs at Rensselaer

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ABSTRACT

THIS ARTICLE CHRONICLES the design, development, and implementation of a MARC-based online cataloging system for visual images. It defines many of the problems encountered during the process and the often unique ways in which attempts were made to solve these dilemmas. It outlines the specific adjustments that needed to be made to accommodate the use of nonbook materials and descriptive language within an existing MARC-based system and how that database was successfully integrated with the library's online catalog for books.

INTRODUCTION

Descriptive terminology, as it applies to architectural spaces and elements, has suffered a long history of subjective interpretation and definition. One person's porch can be another person's portico, just as a column can also be called a pillar depending on the circumstances of its use. For the people who have to use this type of descriptive terminology constantly there is a natural inclination to be as precise as possible without jeopardizing the term's symbolic or historical connections.

This dichotomous situation is especially frustrating to those professionals responsible for the description and interpretation of visual images. The catalogers of large collections of such images usually find it extremely difficult to limit their descriptions to the usual "twenty-five words or less" needed in order to remain within

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LIBRARY TRENDS, Vol. 38, No. 4, Spring 1990, pp. 659-81

the standard confines of catalog and reference cards. Even those collections that have automated their visual image catalogs have, out of necessity, limited their use of descriptive language. By limiting the range and number of possible search terms it naturally follows that potential access to your collections is limited. New technologies have provided the catalogers of visual images the opportunity to test the limits of the use of language within new contexts while at the same time providing the patrons of such collections much broader access to these materials. This article describes the process used to develop the online database for art and architectural slides at Rensselaer Polytechnic Institute.

In 1985, the Rensselaer Architecture Library's Slide Collection used funding from the National Endowment for the Arts to test the applicability of the *Art and Architecture Thesaurus (AAT)* within the context of a working slide library. This coincided with the administration's determination to reorganize and convert the library card catalog to an online public access system and to integrate the slide catalog within it. Several of the questions we were asked to consider during the conversion process were:

—Is *AAT* terminology useful for catalogers and/or patrons?
—What problems are encountered when *AAT* terminology is applied to an established collection?
—What level of expertise is necessary for an indexer or cataloger to use the *AAT* to its fullest extent?
—How much time would be involved in converting a small part of a collection to the online catalog format?

In addition to these questions were several more of our own. This is an account of an evolutionary process and the many problems encountered before final implementation of the system. It is hoped that this account will be of use to those planning to computerize their cataloging systems.

Background Information

The Rensselaer Architecture Library's Slide Collection was established in 1932 and contains approximately 70,000 slides. The collection has increased at an average rate of 6,000 slides per year for the past few years and increased by nearly 10,000 in 1987. Nearly one-third of the collection consists of 3 ¼ × 4 inch glass lantern slides which present problems with regard to storage and projection. Fortunately, many of these lantern slides have been duplicated into a 2 × 2 inch format. Staffing for the Slide Library is limited; there is one full-time Graphics Curator, one half-time temporary research clerk, and two or three part-time student workers. The staff is

responsible for all the normal cataloging, reference, circulation, and general housekeeping duties and also for the in-house production of new slides. During the conversion project they also performed all research, worksheet completion, and data-entry associated with the process. The staff is also responsible for collections of architectural drawings, maps, plans, models, microfiche, microfilm, records, and tapes which are anticipated to be included in the online catalog at a future date.

Although the Slide Library is housed within the Architecture Library, it is a separate entity which developed "organically" to support the faculty and curriculum of the School of Architecture. The old classification system was based on medium (architecture, painting, etc.) and filed according to a loose combination of historical, chronological, and geographical determinants. The scheme was changed several times over the years and by 1985 resembled a synthesis of the *Metropolitan Museum of Art* classification listing for periods and styles and the *University of California at Santa Cruz (Tansey)* system for categorizing visual content. Architecture slides were arranged chronologically and fine arts slides were arranged alphabetically by artist's name. Subject areas such as Architectural Design, Architectural Practice, Planning, and Building Construction were given new classification numbers in accordance with the Architecture Library's Vertical Filing System. By 1985, there were over thirty separate subject categories, each with its own distinct classification scheme. Some were arranged alphabetically, others numerically, and still others by subject. Despite the fact that an authority file and card index had been developed and maintained to help the user, slide retrieval became an art form in and of itself and only the most sophisticated patrons could hope to find what they might need in a reasonable amount of time.

Identification of Requirements and Special Problems

Before beginning to give serious consideration to a retrospective conversion of the slide collection, the particular problems requiring correction needed to be identified. By monitoring usage and patron commentary several areas of difficulty quickly became apparent:

—The existing system was extremely limited in its capacity to accommodate new or expanded subject areas. If catalogers wanted to integrate new material into the existing system, they would have to *force* it into the beginning of an existing subject or style area—i.e., a slide of a Viking fishing village would be forced to fit between English Norman and Gothic.

—The system was not designed to accommodate particular nonwestern and technological subject areas needed to support the changing curriculum of the School of Architecture.
—The existing catalog suffered from severe fragmentation in some very important architectural subject areas. One particular building (e.g., St. Peter's in Rome) could be found listed and stored in as many as nine different categories ranging from Early Christian through 20th Century to Architectural Practice and Maps.
—Most importantly, there had never been a professional curator or librarian in the Slide Library and this situation resulted in inconsistent and sometimes erroneous cataloging.

User complaints centered upon the lack of thorough cross referencing, difficulty in browsing because both sizes of slides were filed in the same drawer, and the extensive search time required to retrieve the needed slides because of the dispersion and fragmentation of subject areas. These and other less immediately obvious problems demanded attention during the development of a new system.

The identification of specific requirements and considerations was the second area to be explored. The main purpose of the project was to develop and implement a system that would serve patrons more effectively and efficiently. If it also made the curator's duties less complicated, all the better. Several distinct areas of consideration were identified:

—A new call number system had to be devised which would allow the entire collection to be integrated into only three distinct headings (architecture, fine arts, and generic subjects/reference examples) and yet be flexible enough to accommodate new or different subject areas within that framework.
—Cataloging practices and descriptive terminology should be standardized to the greatest extent possible to improve consistency. Extensive cross-referencing was needed to improve retrieval time so that a topical lecture on daylighting, for example, or a survey of bridges, might be compiled quickly and efficiently without the patron having to know the names or locations of specific subjects.
—New subject areas needed to be developed to meet the changing demands of not only the faculty of the School of Architecture but also patrons from other curricula and from those outside of the Rensselaer community as well.
—Labor saving devices should be built into the system to whatever extent possible. Particular attention needed to be given to the automatic printing of slide labels and accession cards, and to future compatibility with videodisc technologies.

In order to accommodate these special considerations, the material had to be approached in an entirely different way.

Conventionally, art and architecture slides have been viewed and cataloged as surrogates for works of art. Compositions have focal points and those focal points become the primary subjects described by the cataloger. It appeared, however, that it would be more appropriate to view a slide as a document similar to a manuscript which contains more information than just the title page and author.

Remaining true to the old adage "A picture is worth a thousand words," we set out to prove it. This was accomplished through various means but primarily through visual interpretation and extensive research. By projecting the particular slide being described, the cataloger would constantly scan the image while reading descriptions of the building found in books and journals. This dual process helped the cataloger expand the record past the obvious characteristics and elements to such areas as the types of materials used, site orientation, and stylistic nuances. This extensive use of descriptive vocabulary provided the user with greater access. While the title (Sydney Opera House) is still the primary denotation, the slide document itself also contains information on a variety of subjects (e.g., Ridge Beams, Glass Curtain Walls, Tiles, Shell Vaults, Precast Concrete Ribs, Concert Halls, etc.). These different references now make that slide available to those patrons needing examples of different types of materials, structures, and/or designs. It means that a slide of a statue in a fifteenth-century Gothic cathedral is now available to the student or professor of Medieval history who needs examples of armor or dress from the Middle Ages. Viewing a slide as a document instead of as a composition significantly increases its usefulness as a visual resource. While cataloging in this manner is time consuming, the major cost is the labor. Since conversion necessitated recataloging all of the slides, it worked to our advantage to do it at that time. We no longer have to catalog additional slides of the same building; they are just added to the existing record. So the labor cost was mostly up front and the savings came later when slides could be added to an existing record.

Since a single slide can now be approached from many subject paths, there is no longer a need to duplicate slides for filing into various subject categories. Ultimately, this will mean a savings in terms of storage space and collection development.

Development

Once needs were identified and the various options reviewed, it was decided to utilize the computer technologies available at Rensselaer. In 1984, the library had instituted an online information system called INFOTRAX to replace the card catalog. The system uses the Stanford Public Information Retrieval System (SPIRES) database management system operating under the Michigan Terminal

System (MTS). The Architecture Library's holdings were included in this system since patrons were already familiar with it. It was important that the slide database be compatible with this existing system to allow for future integration.

As was previously mentioned, it was also the intention to test the usefulness of the *AAT* terminology in a working slide library. The ways in which it was decided to use the *AAT* hierarchies will become clear once the composition of the data entry worksheet is understood. The structure of the *AAT* Styles and Periods hierarchy was used as the basis for devising a new classification system and the entire *AAT* was used as the authority file.

The first worksheet design (see Figure 1) had twenty-one fields that could be easily manipulated to meet data entry, display, and printing requirements and create indexes. After the original worksheet had been completed and tested, we became aware of the new MARC compatible OCLC Audio Visual Media Format and decided to convert to it to make the slide database more compatible with Rensselaer's online information system. This decision required an expanded definition of the fields and subfields.

This redefinition stage was the most difficult and time-consuming step in the entire process. With the generous help of the cataloging department's staff, an attempt was made to match and merge the devised fields in the first worksheet with the fields and subfields defined by MARC. Difficulties arose during this step because the majority of slides in the collection were either purchased before 1935 (lanterns) or locally produced, thereby lacking the bibliographic documentation needed to develop a standardized MARC record. The slides did not fit neatly into the criteria used by MARC to define its fields and subfields. This situation inevitably led to reinterpreting and expanding the MARC field definitions in a very open ended manner. Instead of trying to adhere strictly to the criteria in MARC, we reinterpreted and expanded several of the field definitions to meet particular needs (e.g., architectural slides, which don't usually have a uniform title as paintings do, were put into 245: the Title Statement field and generic/reference titles into field 242: Translation of Title by Cataloging Agency [see Figure 2]).

During the reinterpretation process, it was attempted to predict the direction of the collection's future development. Fields which were not immediately useful were included in anticipation of future need. In deciding to use MARC field codes and definitions, consistency and compatibility were gained; however, some flexibility and a measure of control over our own work process was sacrificed. It also multiplied the number of necessary fields, nearly doubling the size of the worksheet (see Figure 3).

File Designation: AR FA RF Century:__ __ Country__ __ State__ __

Cutter city/artist __ __ __ __-__ Cutter/site __ __ __ __-__

Cutter/title: __ __ __ __-__ view/type __ Acc # of detail __ __ __

Chronological order __ __ __ __

Name of artist / architect _____

Title _____

Title of part _____

Completion dates __ __ __ __ - __ __ __ __

Geographic Location, country or state _____

city _____

site _____

Medium (Fine Arts) _____

Dimensions (Fine Arts) _____

Main Entry Subject (Reference)_____

Descriptor terms (to be printed) _____

_____

_____

_____

Descriptior terms (not to be printed) _____

_____

_____

Title of Slide Set _____

Catalog / Accession # _____ Dimensions: 2x2" 3¼x4"

Color / B&W In-House Info: Source_____

Requested By_____ Date_____ Notes _____

Figure 1. The Rensselaer online system for slides. First worksheet design.

In retrospect, it appears that we may have attempted to undertake too many tasks at once. It simply wasn't possible to second guess the future and provide for every alternative. In order to keep the worksheets logical and useful to both cataloging and data entry personnel, plans for including printing formats for slide labels and accession cards had to be postponed. Whereas the first worksheet was straightforward enough, it was quite collection-specific and would have eventually proven itself to be just another stop-gap solution. However, the worksheet that was eventually created was so complicated it hardly seemed worth the effort.

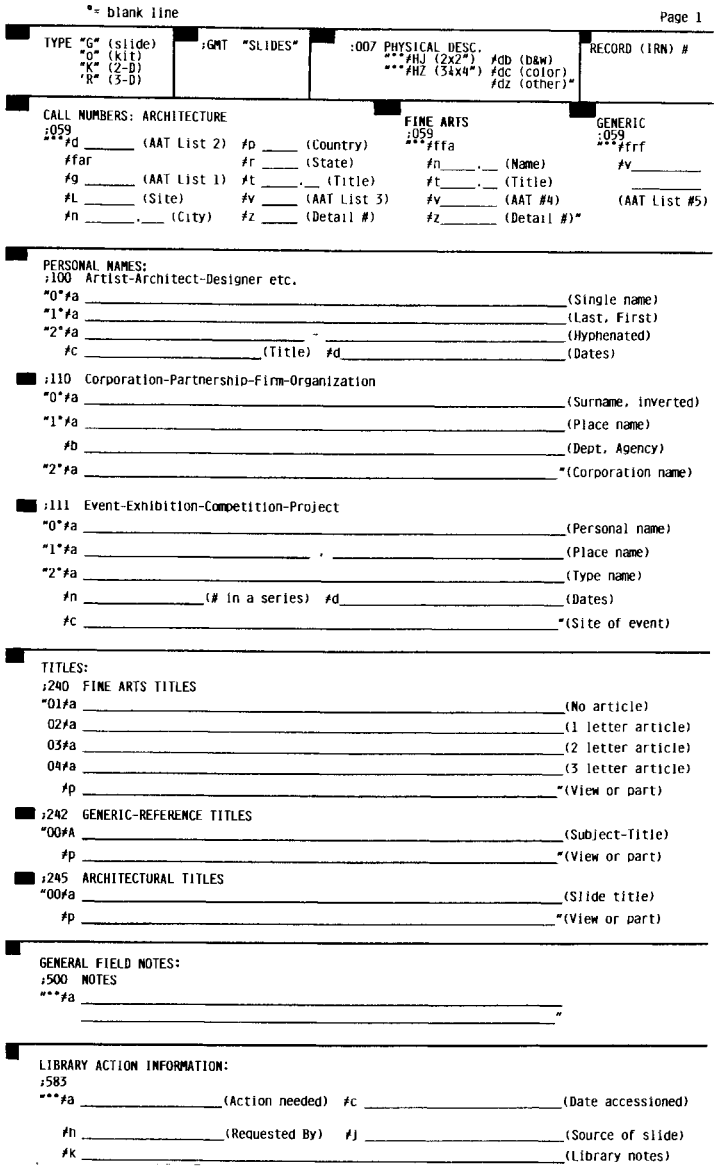


Figure 2. Current worksheet design. Data entry worksheet for the slide collection.

It was at this point that a decision was made to abandon the attempt to incorporate a printing format into the layout of the

worksheet because it limited each field to a single line of text with space for only thirty-five characters per line. This limitation seemed counterproductive to the goal of trying to include as much information as possible on the worksheets in order to achieve greater access.

An attempt was also made to streamline the worksheet down to its most basic components, purposely leaving out exact field numbers and dagger letters (see Figure 4). These second and third generation worksheets required the cataloger to provide the basic bibliographic information (title, subject, location, descriptors, etc.), while essentially ignoring the delineators of MARC fields and subfields. The correct field delineators were then determined by the curator and added to the worksheet just before data entry. Therefore, someone with less training could fill in the worksheets by copying the information gathered from books, labels, and accession records. Then the curator would check this information for errors and determine and fill in the appropriate field numbers and dagger letters. Using this third version of the worksheet, the conversion of the slide collection was begun in March 1986.

Implementation

The third worksheet had been used for about three months before data entry actually began. The worksheet, as implemented online, was a list of all necessary fields in numeric sequence. It was discovered that it took approximately twenty minutes to enter the record for one slide! It soon became evident that the third worksheet was not very efficient in terms of data entry and we found it necessary to devise yet another. This latest worksheet (see Figure 5) includes all the necessary fields and subfields, thereby making it easier for untrained staff to move between the paper worksheet and the online data entry worksheet. This worksheet may appear to be very complicated and overworked, but it has cut down on both cataloging and data entry errors and it approaches the process in a very straightforward and logical manner.

Since the Slide Library had been designated as a test site for the *AAT*, a device was needed to monitor its usefulness. It was decided to place all of the *AAT* terms in the 650 field and all non-*AAT* terms in field 653. This distinction allowed monitoring of user terminology by means of transaction logs—a nonintrusive way to observe user activity.

Once we became familiar with the various field definitions, filling in the worksheets required less and less time. The initial research required for each separate building or site varied according to available resources. The conversion process was started with the Prehistoric section for two reasons: first, because it was felt the subject would

be a good test area as far as research procedures were concerned, and second, because it was one of the smallest sections in the collection and would serve as a good gauge of time requirements. By the time we were ready to convert information on Stonehenge, it became evident that many of the worksheets pertaining to the same site or building contained almost the same information with only minor variations concerning details. At that point photocopies of the first complete worksheet were made and available information such as accession number and view were added to the copied sheets.

```
IRN = 13102;
DATE-ADDED = 02/10/87;
DATE-UPDATED = 05/31/89
TYPE = G;
GMT = SLIDES;
007 = "  ǂhzǂhjǂdbǂdc";
059 = "ǂd4ǂfarǂgfǂnp232ǂpfrǂtp232ǂvg";
100 = "1 ǂaGarnier, Jean-Louis-Charles ǂd1825 - 1898";
245 = "00ǂaParis Opera House ǂpcutaway perspective";
500 = "  ǂaCeiling painted by Marc Chagall in 1964. Sculptural groups by J.B. Carpeaux";
583 = "  ǂaNone ǂc1986 ǂhlibrary";
590 = "  ǂaC21841/19:FR:P:OH:2
590 = "  ǂa1660/19:FR:P:OH:6 ǂa6136 ǂa6147 ǂa1741 ǂa1662 ǂa1814 ǂa11304 ǂaC15631 ǂa10942";
650 = " 7ǂaOpera houses ǂaperspective drawings ǂaBeaux Art ǂModern European ǂBaroque
revival ǂamosaics ǂaloggias ǂaarcades ǂacaryatids ǂa bird's eye perspectives ǂaaxial
buildings ǂavaulted ceilings ǂaauditoriums ǂaconcert halls ǂa performing arts buildings";
650 = " 7ǂastages ǂastaircases ǂastairways ǂastairs ǂamarble ǂaRococo revival ǂdomes
ǂaorchestras ǂrotundas ǂametal domes ǂacopper ǂacolonnades ǂavestibules ǂagabled towers
ǂafoyers ǂadressing rooms";
651 = " 0ǂaParis ǂaFrance";
653 = "  ǂa1862 -1875
        ǂacandelabras ǂachandeliers ǂaescalier d'honneur ǂa gilt ǂagabled flytowers
ǂalateral domes ǂalateral pavilions";
740 = "01ǂa2x2 in. slides: ǂa2 perspectives (1 in color) ǂa4 exterior views (1 in color)
ǂa2 interior views (1 in color). ǂa3x4 in. slides ǂa1 plan ǂa1 section ǂa2 exterior
views  ǂa2 interior views";
```

```
IRN = 13285;
DATE-ADDED = 02/25/87;
DATE-UPDATED = 06/05/89;
TYPE = G;
GMT = SLIDES;
007 = "  ǂhjǂdb";
059 = "  ǂd4ǂfarǂgfǂnv662.1ǂpauǂts822.6ǂvg";
100 = "1 ǂaLoos, Adolf ǂd1870 - 1933";
245 = "00ǂaSteiner House ǂpview from the garden, an early photograph";
500 = "  ǂaThe facade on St. Veitgasse has been radically tampered with, the original
curved and plated roof has been replaced by a pitched roof. The interior has also been
subjected to substantial alterations";
583 = "  ǂaNone ǂcNovember, 1979 ǂjRowland: A History of the Modern Movement";
590 = "  ǂa21302/20:AU:VI:STH:6
        ǂa14985 ǂa14986 ǂa14987 ǂa14988 ǂa14989 ǂa14990";
650 = " 7ǂaArchitect-designed houses ǂadwellings ǂadomestic architecture ǂaresidences
ǂaresidential ǂadetached houses ǂaroofs ǂametal ǂalaminated ǂaflat roofs ǂabalconies
ǂawindows ǂaplaster ǂalime mortar";
651 = " 0ǂaVienna ǂaAustria ǂaWien";
653 = "  ǂa1910
        ǂacurved roof ǂawood cement ǂabays";
740 = "01ǂal plan ǂal section ǂal elevation drawing ǂa3 exterior views ǂal interior view";
```

Figure 3. ROCSS Second Worksheet Design.

This decreased the conversion time, especially when a particular subject such as the Caves at Lascaux, France, contained as many as forty slides. The basic information was constant; it was the particulars that needed to be appended. A backlog of data entry resulted from this increase in worksheet production. In addition, the data entry became repetitive and boring because the same information was being entered repeatedly. A way was needed to create copies of the same entry record which could then be modified to contain the particular information pertinent to each individual slide. The systems

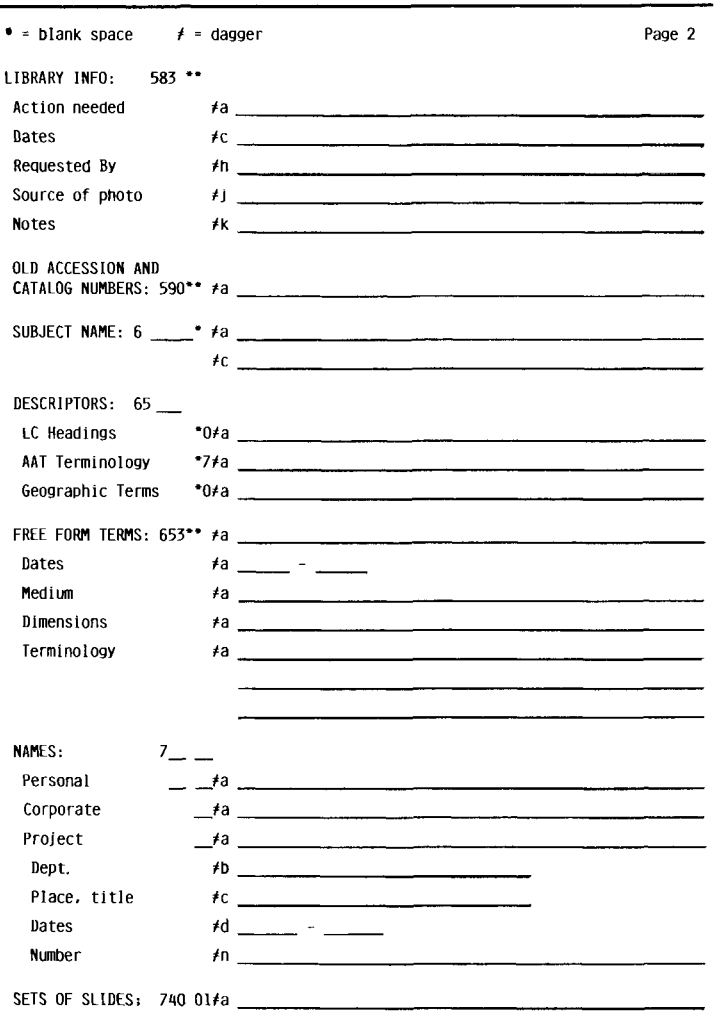


Figure 3 (cont.). ROCSS Second Worksheet Design.

analyst created a "clone" command which duplicated a single entry record as many times as was needed. The data entry person would then go into each of these cloned records and change or add the pertinent information that distinguished that particular slide from others with the same title. The next logical step was to stop photocopying the worksheets and just to make out the primary worksheet and fill in only the information on the subsequent sheets that was distinctive from the primary sheet (i.e., different size, color, source, view, etc.). With each of the learning steps, more and more time was cut from the conversion process.

The "Breakthrough"

Once all these implementation problems were successfully identified and solved, the conversion project proceeded at a slow, yet steady, pace. By the end of 1986, two entire architecture sections had been converted, Prehistoric and Egyptian, and we had just begun converting the 20th Century Architecture collection. It had taken two half-time employees almost eight months to convert and enter approximately 1,300 slides. At that rate it would take fifteen years to convert the entire collection! The National Endowment for the Arts Grant was due to end in February 1987, and at that point we would lose all temporary staff. It was impossible to imagine ever being able to continue, let alone finish, this conversion to an online database. A new strategy was needed.

As we mulled over this problem, it became apparent that one very important factor had been ignored: a computer display or printout would never replace the visual image itself. Since patrons were actually looking for visual images, they would never choose to use a slide based on a written record alone. The online record was simply a step in the process; users would always go to the drawers and pull out the slides to see if they were the images needed. If they were looking for a plan or a cross-section of the Crystal Cathedral by Philip Johnson, all they really wanted to know was whether one was available, and, if so, where it was located. Since all the slides of the Crystal Cathedral are stored together under the same call number and in view sequence, all that was necessary was to treat all slides with the same title as a set. This idea proved to be our "breakthrough."

The solution was to have only one entry record per set or group of slides relating to a building or a work of art. That record contains all the appropriate information pertaining to the building, the accession numbers of the slides in the set, and a holdings listing of the different views contained in that set (see Figure 6). As new slides are added to the set or damaged ones removed, all that is necessary is to update one record by adding the new information

to those two fields.

As a result of this change in approach, instead of having to store 70,000+ records, we actually only have to store about 25,000 records. Searching can be greatly simplified because the patron needs only to find one record for the Sydney Opera House instead of fifty, and that one record contains all the necessary information needed to decide if it is worth looking in the cabinets at all. If the record indicates that the holdings on that particular subject are limited to one exterior view and two details and the patron needs a plan, they then know not to bother going to the slide drawers. Also, the sections cataloged first (Prehistoric and Egyptian) using the clone method, have now been collapsed into sets in order to maintain record format consistency throughout the entire database.

The Public Display

Rensselaer's INFOTRAX information system is an integrated set of databases which provides information about the types of resources available at both the Folsom and Architecture Libraries. The catalog database contains a general listing of books, Rensselaer theses, art prints, cassettes, phonograph records, and audiovisual items. The journal database lists journal titles and information on the volumes and inclusive years held by the library. The orders database lists materials on order and materials received but not as yet cataloged.

The homework database contains uncataloged material such as homework answers, lecture notes, and practice exams for many classes. The IEEE database lists abstracts as well as journal articles and conference papers from the Institute of Electrical and Electronic Engineers. This database also lists some materials not owned by the library. INFOTRAX also contains message and news databases.

INFOTRAX was designed in such a way that all fields and subfields are searchable in data entry mode, the mode used to input the worksheets. By using the simple "Find" command, the staff can search fields not available to the patron such as *medium, action needed* (the condition of the slide), *IRN number* (record number), *requestor* (name of person who requested that the slide be purchased or produced), or *source* (the source from which the slide was purchased or produced).

The public can search the database in several ways. Slides may be searched and identified by title or subject, name, geographic location, accession number, call number, date of completion, source and/or descriptors (both *AAT* and non-*AAT*). SPIRES allows the user to search by single words or strings of words. The user begins a search with the command Find.... The search can be expanded with the word OR and narrowed with the word AND. By combining several

search terms together (i.e., "FIND subject houses BY Frank Lloyd Wright AND Pennsylvania"), the patrons can very quickly sort out exactly what they need.

CALL NUMBER	Printed on slide label
059 ǂe	File designation: _____
ǂd	Geographic area: _____ (Pick A-J from AAT Listing # 1)
	Period / Century: _____ (Pick from AAT Styles & Periods List)
ǂg	Country: _____ _____ (Pick from OCLC Country Codes List)
ǂr	State: _____ _____
ǂn	Cutter # city or artist's name:___ ___ ___ ___ ___
ǂt	Cutter # for title: ___ ___ ___ ___
ǂv	View or type: _____ (Letter taken from Listing # 3)
ǂz	Acc.# of detail: _____ (Numbers 1-10 of different details)
NAMES	
1__ __ 00ǂa	Name of artist or achitect: _____
10ǂa	Corporate names: _____
11ǂa	Competition / Exhibition: _____
ǂd	Dates: _____ - _____
TITLES	
24__ 0 ǂa	Published title:_____
2 ǂa	Building name/title:_____
5 ǂp	Reference/Generic title: _____
TERMS	
6__ __ 7 ǂa	AAT descriptive terms: _____
	Dates of Production: _____ - _____
GEOGRAPHIC	
651 0ǂa	Country, state, city and site: _____
	Medium:_____
	Dimensions of work: _____
LOCAL USE	
590 ǂa	Accession # _____ Old Catalog # _____

Figure 4. ROCSS Third Worksheet Design

SUBJECT ENTRIES		Not Printed on slide label
6__ __	≠a	Subject of the Work: _____
	0*≠a	LC Headings: _____
	*7≠a	AAT Terminology: _____
		_____
		_____
653	**≠a	Free Form Terms: _____
		_____
		_____
ASSOCIATED NAMES		
7__ __	≠a	Persons, Firms & Events: _____
	≠c	Person's Title: _____
	≠d	Dates: ____ - ____
SLIDE SETS		
740	≠a	Title of set: _____
MATERIAL		
007	≠h	Dimensions: ___ x ___
	≠c	Color or B&W _____
LIBRARY INFO		
583	≠j	Source of the photo: _____
	≠a	Type of action needed: _____
	≠h	Requested by: _____
	≠c	Date: _____
	≠k	Notes: _____

Figure 4 (cont.). ROCSS Third Worksheet Design

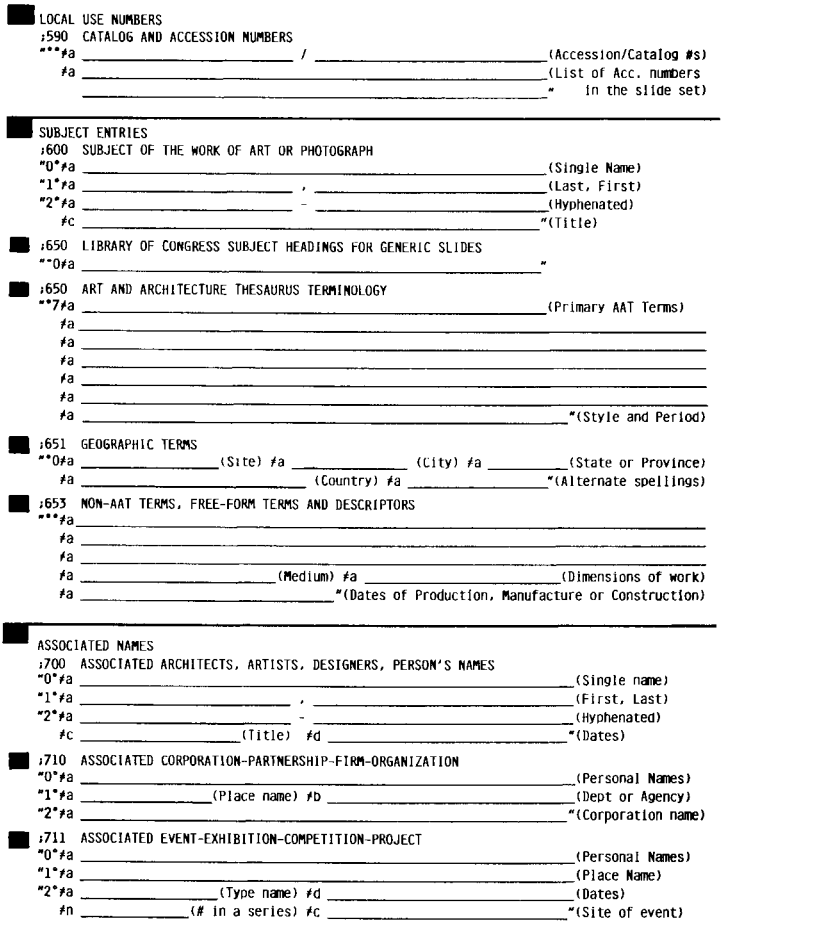


Figure 5. Current Worksheet Design. Data Entry Worksheet for the Slide Collection

The visual display format for the public mirrors that used in the general information system:

—The BRIEF command displays Title, Architect/Artist, and Site on one line.

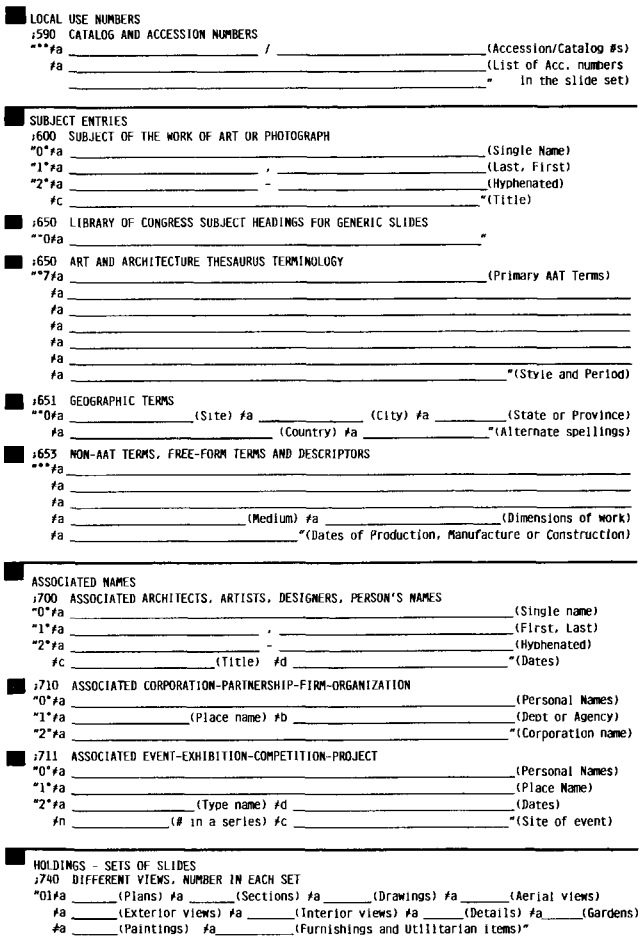


Figure 5 (cont.). Current Worksheet Design. Data Entry Worksheet for the Slide Collection

—The CALL and PRINT commands display and print the above information given in the BRIEF format plus the accession number, original call number (necessary until new call numbers have been assigned), and the size of the slide.

—The DETAIL command gives all of the above CALL command

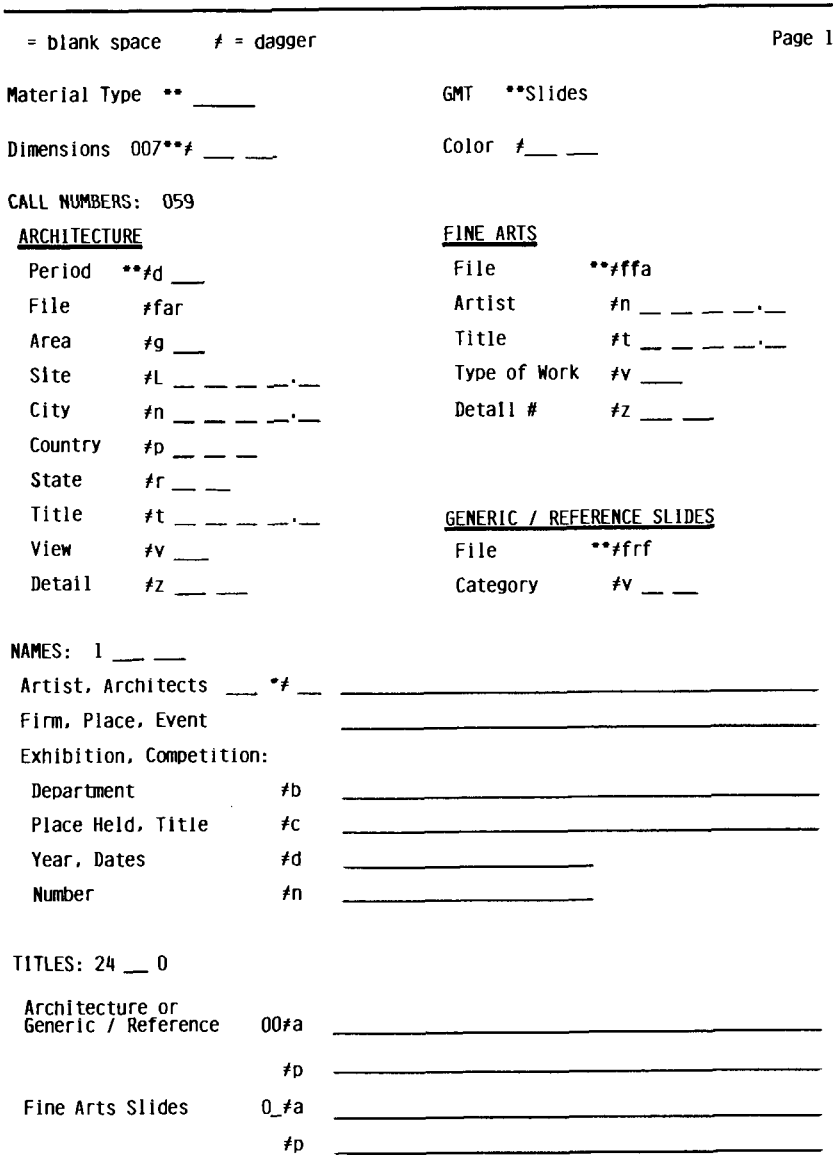
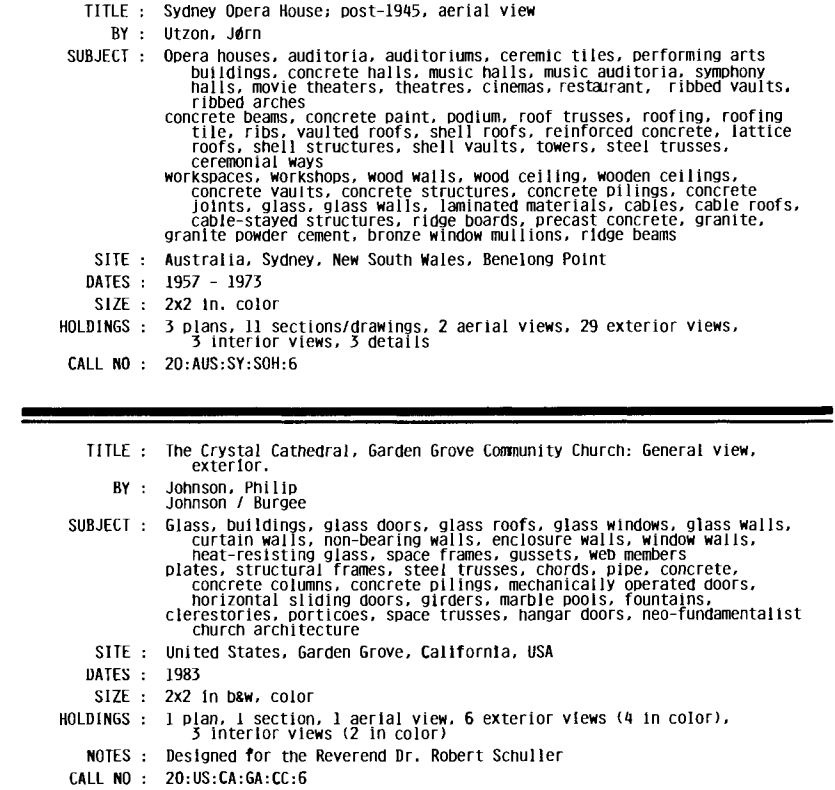


Figure 6. Catalog Entry Samples

information plus a truncated listing of the subject/descriptor fields, dates, notes and a list of current holdings in the set (see Figure 7).

Changes to the public display format can be made as feedback is received from patrons on what other information they would like to see displayed.



TITLE : Sydney Opera House; post-1945, aerial view
BY : Utzon, Jørn
SUBJECT : Opera houses, auditoria, auditoriums, ceremic tiles, performing arts buildings, concrete halls, music halls, music auditoria, symphony halls, movie theaters, theatres, cinemas, restaurant, ribbed vaults, ribbed arches
concrete beams, concrete paint, podium, roof trusses, roofing, roofing tile, ribs, vaulted roofs, shell roofs, reinforced concrete, lattice roofs, shell structures, shell vaults, towers, steel trusses, ceremonial ways
workspaces, workshops, wood walls, wood ceiling, wooden ceilings, concrete vaults, concrete structures, concrete pilings, concrete joints, glass, glass walls, laminated materials, cables, cable roofs, cable-stayed structures, ridge boards, precast concrete, granite, granite powder cement, bronze window mullions, ridge beams
SITE : Australia, Sydney, New South Wales, Benelong Point
DATES : 1957 - 1973
SIZE : 2x2 in. color
HOLDINGS : 3 plans, 11 sections/drawings, 2 aerial views, 29 exterior views, 3 interior views, 3 details
CALL NO : 20:AUS:SY:SOH:6

TITLE : The Crystal Cathedral, Garden Grove Community Church: General view, exterior.
BY : Johnson, Philip
Johnson / Burgee
SUBJECT : Glass, buildings, glass doors, glass roofs, glass windows, glass walls, curtain walls, non-bearing walls, enclosure walls, window walls, heat-resisting glass, space frames, gussets, web members
plates, structural frames, steel trusses, chords, pipe, concrete, concrete columns, concrete pilings, mechanically operated doors, horizontal sliding doors, girders, marble pools, fountains,
clerestories, porticoes, space trusses, hangar doors, neo-fundamentalist church architecture
SITE : United States, Garden Grove, California, USA
DATES : 1983
SIZE : 2x2 in B&W, color
HOLDINGS : 1 plan, 1 section, 1 aerial view, 6 exterior views (4 in color), 3 interior views (2 in color)
NOTES : Designed for the Reverend Dr. Robert Schuller
CALL NO : 20:US:CA:GA:CC:6

Figure 7. Detail Display Samples

Future Considerations

Rensselaer's Slide System is still not complete. A series of "fine tuning" changes will continue to be made as new problems surface and more refined technologies come into use. As soon as it is economically feasible, the database will be linked to a videodisc of the slide images. This link will allow patrons to scan the videodisc for needed images instead of searching through slide drawers. This will also cut down on slide handling, refiling, breakage, and general wear and tear on the collection.

The use of videodiscs will eliminate the need for a call number altogether and will allow the slides to be filed in accession number order. This also solves storage problems because new slides would be added to the end of the collection and not interfiled as they are now, resulting in the constant shifting and reordering of drawers.

The idea of cataloging a series of same-subject slides as sets has proved to be a significant time-saving device. It does not hamper the patron's ability to retrieve relevant material while at the same time it saves considerable time inputting and updating records. It serves as an optimal compromise. The set method of cataloging has precedent in both the cataloging of monographs under a series entry and the cataloging of sets of records by archivists. By extension, one can even view the cataloging of a monograph as a single record representing a collection of chapters and sections on a single topic. Museums have long used this approach in cataloging items such as sets of dishes, jewelry, silverware, and dresser sets. Using the set method of cataloging puts online conversion within reach of those slide libraries with staff and/or budgetary restrictions.

Conclusion

In response to the questions posed at the beginning of this article, the following is a summary of the conclusions arrived at during the process of developing the *Rensselaer Online Cataloging System for Slides (ROCSS).*

—Was *AAT* terminology useful for catalogers and/or patrons?

The catalogers found the terminology to be very useful, especially the Styles and Periods hierarchy. Any attempt at standardization of terminology in that area is bound to be helpful. The further breakdown by culture and reign is especially helpful in categorizing those historical periods in which several distinctive styles are in evidence during the same period. It also serves as the authority file and as a comprehensive guide for cross-referencing terminology. The *AAT* leads both the cataloger and the patron to terms they would have never thought of using previously. It details particular components in such a way that there can be little room for confusion. Since the database has been available to the public,

there has been a positive response from patrons, especially those interested in less-specific subjects such as lighting techniques, construction methods, and stylistic revivals. The use of *AAT* descriptors now allows these users to pull together materials on these subjects quite quickly; it also gives them access to the most recent additions to the collection. Slides produced for a lecture on *sitecast concrete* are now easily retrievable for the patron looking for slides that illustrate different methods of construction. These options are invaluable to patrons using a collection that is classified according to historical periods or artistic styles.

—What were the problems encountered in applying *AAT* terminology to an established collection?

We did not encounter any problems applying the terminology itself. The problems were with learning to deal with the draft printouts of the *AAT* effectively, because each of the twenty-two completed hierarchies had to be searched individually. Until the *AAT* publishes a cumulative cross-referenced alphabetical listing, we may continue to miss a good deal of the appropriate terminology.

—What level of expertise is necessary in order for an indexer or cataloger to use the *AAT* to its fullest extent?

A basic knowledge of art and architectural history and good clerical and research skills are necessary. Undergraduate level coursework in Classical, European, and American history is also very helpful. An initial training period of at least three months was needed before the acceptable level of competence and efficiency was reached. This training period might be shortened if the indexer has had previous cataloging experience, a broad knowledge of art and architectural history, basic familiarity with Latin and other Romance languages, and training in basic logic and critical thinking.

—How much time would be involved in converting a small part of a collection?

After the training period was completed and while still making out one worksheet per slide, it took two half-time employees (or one full-time employee) approximately one month to complete 250 worksheets and enter them into the database. That means that we researched, recataloged, and entered 1.5 slides every hour. The breakdown averaged twenty-seven minutes per worksheet and about ten minutes for data entry. If you were converting a small collection, it would take one full-time employee approximately three and one-half years to complete 10,000 slides. It would take nearly seventeen years to convert 50,000 slides.

After the decision to recatalog sets of slides, it took two half-time employees (or one full-time) one month to research and recatalog approximately 520 slides and enter the same number into the

database. At this present rate it will take less than two years to complete 10,000 slides or eight years to convert 50,000 (divide that time by two for every added full-time employee). The major advantage is that once a subject area has been converted, no extra worksheets are needed for additional slides. The existing record is updated by adding the new accession number and any different descriptive terminology that might apply. Worksheets and data entry would only be necessary for new titles or subject areas.

The larger the slide collection the greater the need for an online database. In the three years of the project we have come to appreciate how much less "busy" work needs to be done to keep records up-to-date. Now when a slide is added to the collection, we first check to see if a record for that title already exists in the database. If it does then all we need to do is add the accession number and particular view to the existing record. The majority of new accessions every year are different or better views of existing sets. Once the entire conversion is completed, the time it takes to process a slide and add it to the collection will be cut by 75 percent. Of course worksheets will still have to be completed for new titles, but it is anticipated that these additions will be limited to selected contemporary buildings and works of art. When we eventually devise a format for printing the slide labels and accession cards from online records, we will then be able to significantly reduce that processing time.

Summary

A visual image is a document without literary text. The text is there; it is being translated through our eyes and intellect even as the image is being viewed. Judgments are being made, questions asked, and emotions felt. However, oftentimes the viewers are not fully aware of the processing taking place inside their own minds. A cataloger cannot hope to cover all the personal interpretations or supply all the possible terms by which a particular image can be described by a user, but with the help of current technologies at least greater accommodation can be made. This is certainly a case where more is better than less. Technology is often blamed for limiting personal expression by restricting vocabulary; this may be one of the few instances where it has helped to expand our use of language within the context of an online catalog.

There is much concern about the consistency and standardization of descriptive terminology. However, these concerns should not put unnecessary restrictions on our ability to comprehensively catalog unpublished nonbook materials, thereby limiting the users' access to that material. Nonpublished materials such as slides that are generated in-house and are very subject specific (e.g., the Empire State Building) are very difficult to catalog using MARC without

some open interpretation of the field definitions. With the Rensselaer Slide System, it was decided to give up some standardization in order to ensure greater access and we consider this a fair tradeoff.

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