Growing Up in a Pre-Millennial World Online Collection

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Growing Up in a Pre-Millennial World Online Collection

 Drawn from the personal and family archives of Ashley Luna, Inna Gogina, and Lacey Legel, the Growing Up in a Pre-Millennial World collection provides visual evidence of the culture and everyday life of women living in the 1960s, 70s, 80s, and 90s across the globe. Forty-five curated digital surrogate records of photographs, drawings, postcards, and other items provide a glimpse of what life was like for young women in the pre-millennial United States (on both the eastern and western coasts), Mexico, Russia, and Ukraine. The collection is accessible online via CONTENTdm: <http://cdm15762.contentdm.oclc.org/cdm/landingpage/collection/p15762coll9>.

**Planning for Digitization**

**Project Description and Overall Theme**

The developers of the collection have chosen a variety of materials in an attempt to visually express what life was like, especially for young women, in the pre-millennial world, specifically the latter half of the 20th century. Ranging from 1963-2000, the collection features:

* Photographs (culled from personal and family albums), both color and black-and-white
* Postcards (featuring recipes, urban architecture, travel destinations, and sites of interest)
* Documents (handwritten documents include personal letters and school assignments, and printed documents include awards, degrees, concert tickets, and identity cards)
* Drawings/art (done in various media on standard size paper)
* A phone calling card
* A floppy disk (computer media storage)

While covering a wide gamut of subjects, including the baby boom generation, children, recreation, computers, holidays, travel, and much more, the collection is designed to encompass the main theme Growing Up in a Pre-Millennial World. The theme has a particular focus on women living in a “pre-millennial” era, during various stages of their lives. By centering the collection on the lives of women and their families, the curators of this collection hope to provide a better understanding of different cultures and values during these eras. Women are an integral part of the global community's social and technological history. The study of women’s lives often provides a better understanding of family structures, and by extension, the larger social structures that underpin our local, regional, and global communities. It can further the understanding of social interactions and how they may relate to the technology-dependent society we live in today. The collection also explores activities and events from these different time periods to highlight what both special occasions and daily life in various cultures looked like and how technology has played a growing role in the development of an overarching global culture.

Defining fashions and styles of the chosen time periods was also an important element in this collection. Different styles and trends are showcased to express a sense of cultural variety and to distinctively place the collection firmly within the visual scope and collective understanding of the user. Fashion reveals a great deal about social expectations and their acceptable expressions. From everyday dress to special events, individuals make conscious and unconscious decisions about the clothing they wear and how they and their family will be presented in pictures and portraits, and these in turn can reveal certain aspects of personality, history and social and economic background. The group wished to highlight some of these aspects when choosing the images to be digitized and added to the collection.

 In addition to maintaining the thematic scope, the digitization team pursued the following goals:

* Ensure a consistent, high level of image quality
* Promote long-term digital preservation
* Facilitate the interoperability and accessibility of the digital collection and the digital library environment through the use of widely accepted standards and formats (Bibliographic Center for Research, p. 1).

**Potential Users and Information Needs**

 The contributors anticipate that the Growing Up in a Pre-Millennial World collection will be of interest to students and scholars from a broad spectrum of disciplines, including architecture, art history, anthropology, cultural heritage preservation, fashion, gender studies, history, pop culture, and sociology, to name a few. It is also hoped that the collection will be enjoyable for the general public, as well. Researchers interested in exploring visual representations of social and familial interactions, cultural expressions, and technological history will also find potential documentation within this collection. The users that primarily stand to benefit most from this collection are historians, anthropologists, and feminists because this collection provides a glimpse into the private lives of individual women and their families from different cultural and social economical backgrounds. The collection features culturally specific cuisine, historical locations, and recreational activities, as well as different forms of art and expression, that provide links to the society in which these women grew up.

 Potential users can also draw on these records to study the relationship between culture and technology as it has developed in the last half of the 20th century. The documents and images in this collection help to examine social circumstances over a 40 year period and provide a record of general social interactions, attitudes, and beliefs about the world before the advent of electronic handheld devices and widespread social media technologies, lest current and future generations forget how different the world was before these innovations. Therefore, it was of great importance to provide high quality images with rich based content to meet potential users' needs. The developers of this collection also felt it was important to provide detailed metadata so that users have a deeper understanding of the context of each image to assist with their analysis and research.

While anticipating these multidisciplinary information needs, and in order to make the use of the online collection enjoyable, the project group developed multifaceted information retrieval functionality. From the landing page, the collection can be searched by a list of suggested topics, such as children, families, girls, hairstyles, clothing and dress, food, and vacations. In addition, users can search the collection by title, subject, description, original date, geographic coverage, creator, contributors, type, format, and language. Users will be able to interact with the collection by adding tags, comments, and ratings to its items. Finally, the CONTENTdm functionality allows sharing the items with other users, downloading, and printing the items, and includes the reference URL’s.

**Copyright Considerations**

## The Growing Up in a Pre-Millennial World collectionis a compilation protected under multiple copyright, pursuant to U.S. Code Title 17 and/or the copyright laws of other nations. A compilation is “a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship. The term “compilation” includes collective works” (U.S. Code Title 17 §101 Definitions). Whereas the majority of collection items originate in the personal collections of the authors of this paper, Growing Up in a Pre-Millennial World includes several items where the copyright is owned by another entity. While designing the copyright statement for the online collection, the developers took into consideration that “the copyright in a compilation extends only to the material contributed by the author of such work, as distinguished from the preexisting material employed in the work, and does not imply any exclusive right in the preexisting material. The copyright in such work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material” (The U.S. Code Title 17. *§ 103 . Subject matter of copyright: Compilations and derivative works*). In order to address that, the authors included the following copyright statement in the online collection's landing page:

## “Growing Up in a Pre-Millennial World does not imply any exclusive right in the preexisting material. The works with preexisting copyright are reproduced in accordance with Title 17 of the United States Code, Section 107: Limitations on exclusive rights: Fair use (17 USC § 107). The written permission of any copyright owners, and/or any other rights holders (such as publicity or privacy rights), is required for distribution, reproduction, or other use of protected items that extends beyond fair use or other statutory exemptions. The copyright for all other images in this collection is owned by the Publisher. The use of the Publisher-owned works is available under Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/3.0/deed.en_US>. For more information about seeking permission to publish or reproduce, contact the Publisher, Spring2014-284-10-Group06, at Library & Information Science Department, One Washington Square, San José, CA USA, 95192-0029 Phone: 408-924-2490. ”

## Selection

Selection criteria included each item's physical condition (images without tears, physical damage, or significant fading), image quality, potential cultural value for end users, and relevance to the overarching theme of the collection. The collection developers evaluated the value, risk, and use of each potential record. According to Vogt-O’Connor, a collection should be digitized if the primary value of the materials is evidential, or the materials serve as legal or historical proof of an action or event. Similarly, the material should be digitized if it has substantial informational and/or associational content of interest to a key audience (Sitts, M. K., & Northeast Document Conservation Center, 2000, p. 67). In this particular project, the photographs, postcards, documents, and other collection items are evidential in nature and have great potential in generating interest in this collection from scholars, students, and the community at large – especially as time progresses and in addition to cultural value, the items acquire historical value as well.

Some potential records were specifically chosen to present examples of everyday life before the prevalence of handheld devices and some records were chosen to represent the then-current technological media or advances of the era. Handwritten letters and postcards draw attention to the absence of today's technological means of communication such as texting, email, blogs, and other social media tools. Photos that displayed particular fashions, hairstyles, and activities that were particular to their era were selected as examples for the social record. Preference was given especially to images that could potentially highlight the different lifestyles of women over the course of the time period chosen. As an added value to the collection, the variety of document types and formats will provide the end users with diverse sources of information and enhance their information retrieval experience. The varied content will afford a future audience the opportunity for comparative analysis of various information sources and hopefully support new kinds of scholarship and research in the expanding online multimedia learning environment.

**Technical Production Information**

**Technical Production Standards**

**Scanning equipment.** The Growing Up in a Pre-Millennial World collection items were digitized at three separate locations, using the following scanners and scanning software:

|  |  |  |
| --- | --- | --- |
| **Images 01-15** | HP Photosmart eStation C510 series scanner | Apple Image Capture software |
| **Images 16-30** | Epson Stylus NX415 series scanner | EPSON Scan software |
| **Images 31-45** | Epson Stylus NX430 series scanner | EPSON Scan software |

**Compression.** All master files of images 16-45 were saved as uncompressed TIFF files. As production of uncompressed files was not available on the scanner used for images 01-15, all master TIFF files for these images were produced with lossless LZW compression. This type of compression was chosen as it uses a lossless algorithm to compress files by up to 33% without throwing away data irrevocably, according to the NINCH Guide, and when “the file is decompressed it is possible to reconstruct the compressed data” (Humanities Advanced Technology and Information Institute, & National Initiative for a Networked Cultural Heritage [The NINCH Guide], 2002, p. 110).

**Resolution.** Scanning resolution was chosen according to *NARA Technical Guidelines for Digitizing Archived Materials for Electronic Access*, in Photographs – prints—black-and-white, monochrome, and color—reflection scanning: “Scan resolution to be calculated from actual image dimensions – approximately 400 ppi for 8"x10" originals and ranging up to the appropriate resolution to produce the desired size file from smaller originals, approximately 570 ppi for 5"x7" and 800 ppi for 4"x5" or 3.5"x5" originals. *Dimensions*: Sized to match the size of the original, no magnification or reduction” (U.S. National Archives and Records Administration, 2004, p. 67).

Due to the different scanning capabilities, the resolution in the collection’s master images varied between subsets. Because the 400 ppi, 570 ppi, and 800 ppi option was not available on HP Photosmart eStation C510 series scanner, the resolution for 8"x10" and 5"x7" originals was scaled up to the nearest available setting: 600 ppi, and for 4"x5" or 3.5"x5" originals—1200 ppi, in the image 01-15 subset. Materials with very fine lines and a high level of detail, e.g. containing a lot of detail in a small area, as well as documents containing very small fonts, were scanned at 1200 ppi regardless of the size of the original. The 600/1200 ppi approach was used in scanning images 31-45, as well, in an attempt to standardize the collection across subsets.

Images 16-30 were scanned in the “Professional” mode of the EPSON scan software, using the document type setting “reflective.” The setting for auto exposure type was set to “photo/document” for all images except image 25, which after testing and comparisons, had better results when scanned under the “text” setting. For this subset, materials with an average level of detail were scanned at the 800 ppi resolution; materials with very fine lines and a high level of detail, e.g. the fine text printing on the back of the phone card in image 29, were scanned at 1200 ppi. While the group standard agreed upon was 600/1200 ppi, the team member working on images 16-30 found that scanning at 800/1200 ppi produced noticeably more detailed images when she compared the two side by side and opted for the best possible image quality that could be managed.

**Bit depth and color profile**. The 24 bit RGB bit depth and Color profile: ICC Profile: sRGB IEC61966-2.1 were used for materials in color, as well as black-and-white photographs with visible signs of aging, where color was meaningfully present in the original (The NINCH Guide, 2002, p. 109). Black-and-white photographs in good shape, without visible signs of aging, were scanned at 8 bit standard grayscale and Color profile: ICC Profile: Generic Gray Gamma 2.2 Profile.

**Image Production**

**Master Images**

Two versions of digital masters were produced for items 01-45: an archival master, for long-term storage and preservation, and a service master, used for production of subsequent access derivatives. The masters were produced in TIFF format―the recommended format that is most frequently used for master digital images (Bibliographic Center for Research, 2008, p. 22). “In creating master files, the primary objective is to produce digital images that look like the original items and to create a “reasonable reproduction” without enhancement,” *Technical Guidelines for Digitizing Cultural Heritage Materials* point out. “In general, master files have the following attributes:

* Maintain the essential features and information of the original
* Represent the best copy produced by a digitizing organization, with best defined as meeting the objectives of a particular project or program
* Represent digital content that t the organization intends to maintain and manage for the long term
* Are created primarily for the production of a range of copies used for specific purposes (such as derivatives and duplicates)
* Document the image at the time of scanning, not what it may once have looked like if restored to its original condition” (Federal Agencies Digitization Initiative Still Image Working Group, 2010, pp. 1-2).

In order to ensure the most faithful reproduction of the original analog items, the archival masters of the images 01-45 were produced with the following guidelines in mind: “ensuring control of your scanner software is crucial to capturing a clean, unaltered master image. This generally means you will not make use of the scanning software's automatic settings. If available, opt for the “advanced” or “custom” settings mode, and disable features such as automatic unsharp masking, preset output levels for black and white, moire descreening and anything else which alters the image in any way” (Bibliographic Center for Research, 2008, p. 20).

The service masters were cropped, when necessary, and sharpened 20% using “unsharp mask.” The tone levels for images 01-15 were minimally adjusted when necessary, the color management was not applied, however, in order to preserve the color scheme of the originals.

**Access Derivatives**

The access derivatives were created from service masters in JPEG format, with lossy compression, using Adobe Photoshop CS6 software (for images 01-15 and 31-45) and Adobe Photoshop Elements 11 (for images 16-30), under the following step algorithm:

1. Open service master TIFF in Photoshop.
2. Crop if needed, to leave approximately 1-3 mm around the document border.
3. Filter -> Sharpen -> Unsharp Mask at 20%.
4. Image size – reduce down to 300 ppi.
5. Save as JPEG at Maximum Quality, Baseline Optimized.

The resulting JPEG files had the following characteristics: 24 bit RGB and 300 ppi resolution for the majority of files. Some adjustments to the resolution were necessary for particularly small images, such as image 25 (which was saved at 450 ppi), and also for particularly large images, such as image 30 (which was saved at 133 ppi), and images 08 and 12, saved at 200 ppi. The goal in adjusting the ppi was to achieve the highest possible resolution while creating a file that remained under the 5MB size cap, which had been suggested for working with CONTENTdm. The group discussed using JPEG versus JPEG 2000 for the creation of access images, but an overall lack of familiarity with JPEG 2000 convinced the group that working in the more common format of JPEG was a better choice.

**Image Quality**

Due to the limited scanning capacity of the HP Photosmart eStation C510 series, minor quality issues were observed in the digital surrogates of images 01-15, including spiking and occasional noise. That could potentially be attributed to the insufficient tonal reproduction capacity of the scanner, as well as the age damage and print quality of some of the original items: “Acceptable spikes can occur if the edge of the original negative has lost emulsion for example, or the sky holds no detail and is one tone in the original,” *BCR's CDP digital imaging best practices* explain (Bibliographic Center for Research, 2008, p. 41).

 Every effort was made to prevent visible dust (and cat hair, which was no small feat!) from being included in the original scans of images 01-45, which required frequent cleaning of the glass in between scans, ensuring that there was no visible debris on the documents themselves, and the occasional re-scanning of images when detritus that was not previously visible became noticeable in the high quality details of the scan. Beyond the steps listed above for the creation of access images, no alterations or edits were made to image files 16-45 in Photoshop. For images 16-30, comparisons were made between the master TIFF file and the JPEG access file at 50, 80, and 100% zoom to ensure that the quality of the access images was consistent with the original and that pixelation occurred at roughly the same level in both versions of the image.

 Overall most images do not have noise or clippings in the histogram.  Although some images suffer from dust, scratches or imperfections caused by damage to the scanner's glass, the quality of the scans themselves is consistent. Noise is present in a few images where the dark areas have lost some level of information. In images 31-45, the conversion from TIFF files to JPEGs did affect the quality of the images as moiré and pixelation occurs sooner when zoomed in on the JPEG version.  The overall quality of the images, both individually and collectively, was satisfactory for creating access images to serve the needs of the users of the online digital collection.

**Metadata**

**Metadata Types**

In order to facilitate resource organization and discovery in the Growing Up in a Pre-Millennial World collection, provide digital identification, ensure resource interoperability, archiving, and long-term preservation, the group designed descriptive, administrative, and structural metadata for the collection records, using The NINCH Guide recommendations:

* Descriptive metadata describes and identifies information resources, and is used at the local level to enable searching and retrieval and at the web level to enable users to discover resources.
* Administrative metadata facilitates short and long terms management and processing, records data on creation and quality control, rights management and preservation.
* Structural metadata captures information about the structure of a digital object and the relationships between its parts. It facilitates navigation and presentation (2002, p. 115).

As the University of Washington guidelines for using CONTENTdm metadata fields point out, each of the CONTENTdm digital resources “has a description (or “metadata”) attached to it. It is important to know that the description will not only be displayed with the resource, but that the data contained in it can also be used for searching your collection by itself or in combination with other collections” (University of Washington, University Libraries, *Metadata Guidelines for Collections using CONTENTdm)*. In order to afford the cross-institutional, federated search and retrieval of collection items in the real-world digital library environment, we applied the Dublin Core Metadata Initiative (DCMI) standards while designing our metadata fields.

Each collection record contains twenty metadata fields. **Descriptive metadata** included the following fields: Title, Subject, Description, Date Original, Coverage (mapped to the DCMI Coverage-Spatial metadata type), Creator, Publisher Original, Contributors, Type, Format, Identifier, and Language. With the exception of Publisher Original and Identifier, all descriptive fields were made searchable to enhance the end user's information retrieval experience. **Administrative metadata** included Relation, Publisher Digital, Date Digital, Date Online, Rights, Digitization Specifications, and Master Image fields.

Growing Up in a Pre-Millennial World features 11 compound objects: several postcards, a phone calling card, an identification badge, a diploma, and a physical object - a floppy disc. The compound objects include the object-level metadata (a metadata record describing the object itself) and the page-level metadata (a metadata record for each of the composite pages or items that make up the compound object). The page-level metadata included the following fields: Title, Identifier, Relation, Rights, Master Image, and Compound Object Item Identifier—the only field in the collection’s **Structural metadata**. Figure 1 below provides a snapshot of the collection’s metadata architecture; definitions and syntax of the metadata fields is detailed in Figure 2.

**Figure 1. Collection metadata on CONTENTdm**



**Figure 2. Field Definitions**

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Group 6 Metadata** | **Definition (DCMI)** | **Standard/Examples** |
| 1 | Title | The name of a resource; a caption. | Free-text title of an individual collection item; existing title should be used if present (e.g. postcard caption) |
| 2 | Subject | Terms, keywords or phrases, describing the content of a resource/ The topic of the resource. | Use TGM standard, e.g. Term: Portraits; or Narrower Term: Group portraits; etc. |
| 3 | Description | Brief account of the content of a resource (e.g., summary or abstract), including physical dimensions of the collection item, in inches and centimeters. | Free-text description of an item, will be keyword searchable; postcard records may include transcript where handwriting is present;Photograph Size: 4.6 x 6.5 in. (11.7 x 16.5 cm)  |
| 4 | Date Original | Publication date of a [original] resource, or date a resource is issued. | yyyy-mm-dd; use "circa" for approximate dates, e.g. circa 1982 |
| 5 | Coverage | The spatial characteristics which describe the content of a resource. | Use TGN standard: E.g. Atlanta (World, North and Central America, United States, Georgia, Fulton county: inhabited place) |
| 6 | Creator | Entity primarily responsible for creating the intellectual content of a resource. | Photographer, Artist, Issuing Agency (for ID documents): [Last name, First name] |
| 7 | Publisher Original | Person or Corporate/Organizational entity responsible for producing the original resource. | if applicable, e.g. Publishing agency indicated on the reverse side of the postcard. |
| 8 | Contributors | An entity responsible for making contributions to the resource, e.g. additional writer, illustrator, editor, finding aid author, etc.  | Name of Group 6 member contributing the item in the group collection: [Last name, First name] |
| 9 | Type | The characteristic that identifies a resource by genre. | Use DCMITYPE standard: Image, StillImage, Text, Physical Object, etc. |
| 10 | Format | The media form of the resource. | Use AAT standard: black-and-white photographs; children's art; color photographs; etc. |
| 11 | Identifier | Unique numeric or alphanumeric character string used to locate or label a resource/An unambiguous reference to the resource within a given context. | group06\_image01 |
| 12 | Language | Depicted language(s) via text, audio, and/or video, of a resource. | Use when language is present:a) Use ISO 693-2,3 standard: <http://www.loc.gov/standards/iso639-2/php/English_list.php> b) for several languages:Separate terms by semi-colon (;) and a space. For example, for French and English: **fre; eng** |
| 13 | Relation | Named digital collection where a resource resides. | Collection "Growing Up in a Pre-Millennial World" |
| 14 | Publisher Digital | Person or Corporate/Organizational entity responsible for producing the digital copy of the resource. | Spring2014-284-10-Group06 |
| 15 | Rights | Copyright & intellectual property permissions concerning legal use, access and reproduction of a resource. | Group 6 copyright statement, adjusted per collection item |
| 16 | Date Digital | A date a digital copy of the resource was made. | yyyy-mm-dd |
| 17 | Date Online | A date a digital copy of the resource was made available online | yyyy-mm-dd |
| 18 | Digitization Specifications  | Technical production information | scanner name, compression ratio, ppi, bit-depth, scanning software, colorspace |
| 19 | Master Image | Name of the master file | group06\_image01.TIFF |
| 20 | Compound Object Item Identifier  | Identifier of Compound Object Items | Page #, e.g. Page 1, Page 2, etc. |

The fields for which information was not available, were left blank, according to *Best Practices for CONTENTdm and other OAI-PMH compliant repositories*: “Prefer non-use of ‘junk value’ (e.g. “Unknown”)” (OCLC, 2013, p. 11).

**Controlled Vocabularies**

In order to expedite the data entry and prevent human error during the indexing process, collection developers assigned controlled vocabularies to four fields in the Growing Up in a Pre-Millennial World collection:

|  |  |  |  |
| --- | --- | --- | --- |
| **Group 6 Metadata Field** | **DC (Dublin Core) Map** | **Controlled Vocabulary** | **Vocabulary Source** |
| Subject | Subject | Thesaurus for Graphic Materials (TGM) | CONTENTdm |
| Coverage | Coverage-Spatial | Getty Thesaurus of Geographic Names (TGN) | <https://www.getty.edu/research/tools/vocabularies/tgn/> |
| Type | Type | DCMI Type Vocabulary [DCMITYPE] | CONTENTdm |
| Format | Format | Art & Architecture Thesaurus (AAT) | CONTENTdm |

The authors customized the TGM and AAT controlled vocabularies available on CONTENTdm by creating smaller subsets of subject terms relevant to the project. Due to the large size of the TGN vocabulary, the terms for the customized group vocabulary were selected not from CONTENTdm vocabulary version, but rather from the vocabulary website (The Getty Research Institute, Getty Thesaurus of Geographic Names® Online). The complete controlled vocabulary lists are enclosed in Appendix A.

**Additional Issues**

 Each group member used a different type of scanner and scanning software so image capture quality varies between subsets within the collection. Developing consistent capture standards that group members followed, such as using 600 ppi and 1200 ppi so that sufficient detail would be captured for the master files, helped minimize this issue. Storage was not an issue for the master files, so a high resolution was chosen and agreed upon by the project group and uncompressed files were created when possible. The group felt it was important to capture as much detail as possible in each image since one of the important features of the collection was fashion. Every attempt was made to capture details like patterns on clothing, textures of fabrics, personal accessories, and hairstyles to give users of the collection an accurate picture of the physical culture of the era.

 Because the images were scanned at high resolutions, some imperfections inherent in both the scanning equipment and the original records themselves show up in both master and access image files. Quality issues were unavoidable due to the state of the photographs, some of which had minor surface scratches, damage from being glued in old photo albums, and minor discoloration. A decision was made to leave the master and access images untouched, without any corrective editing to improve upon imperfections, in the interest of retaining the authenticity of the images. Editing would have made permanent changes that could have altered the original context of the images and possibly caused the images to lose irretrievable information that might have been of value to a user or researcher.

 Each member of the project group faced unique challenges related to work schedules, travel plans, access to original records, technological difficulties (with equipment and software), and issues with the CONTENTdm software, but supportive and patient teammates and the guidance and assistance of a knowledgeable professor made this group project a very pleasant experience for all involved.

**Conclusion**

“Collaboration is increasingly a factor in all aspects of work in libraries, archives, and museums and is often a prerequisite for digitization initiatives at local, national, and international levels,” Note points out (2011, p. 147). The *NINCH Guide to Good Practice* emphasizes the importance of consistently applying technical and information standards, to facilitate the consortial and cross-institutional collaboration in the digitization field: “By adopting community shared good practice, project designers can ensure the broadest use of their materials, today and in the future, by audiences they may not even have imagined and by future applications that will dynamically recombine “digital objects” into new resources” (Humanities Advanced Technology and Information Institute, & National Initiative for a Networked Cultural Heritage, 2002, p. 1). It is with the collaborative efforts of information organizations and the growing information needs of the global learning community in mind that our group has worked to design, develop, and implement the Growing Up in a Pre-Millennial World online collection. The group made every effort to ensure the interoperability and sustainability of the collection in the online library environment through the use of widely accepted standards and formats, in particular by applying the most up to date image production and metadata standards across all subsets of the collection. The collection developers intentionally chose a theme that would allow each member of the group to both engage with and contribute to the overall collection, regardless of the various ages, locations, and backgrounds of each member. Frequent and regular group meetings to discuss and develop the project, sharing resources (like Dropbox and Google Docs) and responsibilities within the group, and excellent (and constant) communication between all members resulted in not only a highly successful project result, but also a pleasant and positive experience for each member of the group.

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**Appendix A. Controlled Vocabularies**

**Field: Coverage**

**Getty Thesaurus of Geographic Names (TGN)[[1]](#footnote-1)**

Atlanta (World, North and Central America, United States, Georgia, Fulton county: inhabited place)

Bellflower (World, North and Central America, United States, California, Los Angeles county : inhabited place)

Columbus (World, North and Central America, United States, Georgia, Columbus county: inhabited place)

Crimea (World, Europe, Ukraine, Krym : general region)

Detroit (World, North and Central America, United States, Michigan, Wayne county: inhabited place)

Durango (World, North and Central America, Mexico, Durango state : inhabited place)

Fort Lauderdale (World, North and Central America, United States, Florida, Broward county: inhabited place)

Kiev (World, Europe, Ukraine, Kijev oblast : inhabited place)

Lake Buena Vista (World, North and Central America, United States, Orange county: inhabited place)

Los Angeles (World, North and Central America, United States, California, Los Angeles county : inhabited place)

Los Angeles (World, North and Central America, United States, California : county)

Monterey Park (World, North and Central America, United States, California, Los Angeles county : inhabited place)

Moscow (World, Asia, Russia, Rossiya republic, Moskva autonomous city : inhabited place)

Odessa (World, Europe, Ukraine, Odessa oblast : inhabited place)

Orlando (World, North and Central America, United States, Florida, Orange county: inhabited place)

Perrysburg (World, North and Central America, United States, Ohio, Wood county: inhabited place)

Portland (World, North and Central America, United States, Oregon, Multnomah county: inhabited place)

Quartz Hill (World, North and Central America, United States, California, Los Angeles county : inhabited place)

Roswell (World, North and Central America, United States, Georgia, Fulton county: inhabited place)

Sumy (World, Europe, Ukraine, Sumy oblast : inhabited place)

**Field: Format**

**Art & Architecture Thesaurus (AAT)[[2]](#footnote-2)**

black-and-white photographs

cards

children's art

color photographs

computer equipment

computers

diplomas

discs

drawings

freehand drawings

graphic arts

greeting cards

group portraits

identity cards

information storage

love letters

markers

pencils

photographic postcards

picture postcards

portrait format

postcards

recipes

storage devices

studio portraits

telephones

ticket stubs

tickets

**Field: Subject**

**Thesaurus for Graphic Materials (TGM)[[3]](#footnote-3)**

Accessories (Clothing & dress)

Arts & crafts

Baby boom generation

Band uniforms

Banners

Birthday cards

Birthday parties

Boys

Camping

Camps

Cards

Castles & palaces

Celebrations

Cherries

Children

Children's art

Children's parties

Christmas cards

Christmas trees

Clocks & watches

Clothing & dress

Communion

Computers

Concerts

Cookery

Costumes

Couples

Dance parties

Diplomas

Documents

Drawings

Dresses

Education

Events

Families

Family

Fantasy

Fast food restaurants

Festivals

Food

Fraternities & sororities

Friendship

Gays

Gazebos

Girls

Gloves

Greek temples

Group portraits

Hairstyles

Hearts (Symbols)

Historic buildings

Holidays

Honeymoons

Horses

Ice cream & ices

Identification photographs

Infants

Interior decoration

Kindergartens

Language education

Lasers

Lions

Literature

Love letters

Motorcycles

Music

Myths

Neckties

New Year cards

Parks

Parties

Patterns (Design elements)

People

Photographic postcards

Photographs

Portrait photographs

Portraits

Postcards

Rainbows

Recreation

Rites & ceremonies

Rock music fans

Roses

School children

Sculpture

Slides

Stairways

Stationery

Streets

Students

Stuffed animals (Toys)

Teenagers

Telecommunications industry

Telephone industry

Telephones

Tickets

Translators

Travel

Trees

Unicorns

Uniforms

Universities & colleges

Vacations

Vocational education

Weddings

**Field: Type**

**DCMITYPE Vocabulary[[4]](#footnote-4)**

Image

Physical Object

Still Image

Text

1. Source: TGN accessed through <http://www.getty.edu/research/tools/vocabularies/tgn/?find=monterey+park&place=&nation=&prev_page=1&english=Y> [↑](#footnote-ref-1)
2. Source: AAT vocabulary accessed through CONTENTdm [↑](#footnote-ref-2)
3. Source: TGM vocabulary accessed through CONTENTdm [↑](#footnote-ref-3)
4. Source: DCMITYPE vocabulary accessed through CONTENTdm [↑](#footnote-ref-4)