Discovery, Knowledge Creation, and Dissemination of research and art information: pillars of GRI mission

- How did art historians do research in the past?
- By hand, physical resources and card catalogs, bibliographic indexes such as BHA (Bibliography for the History of Art)
- Printing out, photocopying, taking photos, note taking
- Traveling around the world, many months to find all data

- Needed better methods and tools for research and discovery
- Solutions would also address needs of repositories, other cataloging institutions with mission to disseminate their data
- The Getty Vocabularies, CDWA, etc. were developed to allow consistency in cataloging and improvement of retrieval

Goal = data linked to other data, discoverable –
First = deal with human factor, links/consensus across different disciplines; repositories (archives, special collections, visual resources, museums, bibliographic, scholars); languages and cultures; current and historical

Where We Are Now

- Now we can begin to find materials for research and discovery online
- Getty vocabularies have been used for indexing
- Now = links are possible via LOD, links to TGN and AAT within ULAN are used
- 90 sample SPARQL queries, editable

Find artists who worked in Italy and lived during a given time range but who are not Italian

- Select ULAN records
  - Having event that took place in tgn:1000080 Italy or any of its descendants
  - Birth date between 1250 and 1780
  - Descendants of facet ulan:50000002 “Persons, Artists”
  - Not having nationality aat:300111198 Italian or any of its descendants

- Then use this set of artists to search for works

• Hier. Link in TGN

A few decades have passed...
Using Linked Open Data

Getty Vocabularies are LINK-able

ULAN

Data in standard formats that allow linking

Hier. Link in TGN

Select ULAN records
- Having event that took place in tgn:1000080 Italy or any of its descendants
- Birth date between 1250 and 1780
- Descendants of facet ulan:50000002 “Persons, Artists”
- Not having nationality aat:300111198 Italian or any of its descendants

- Then use this set of artists to search for works

Select 7x ?name ?bio ?birth
  (select distinct ?x)
  (?x foaf:focus/bio:event/(schema:location|(schema:location/gvp:broaderExtended)) tgn:1000080-place)
  (?x gvp:prefLabelGVP/xl:literalForm ?name;
  foaf:focus/gvp:biographyPreferred [schema:description ?bio;
  gvp:estStart ?birth]).

filter (“1250”^^xsd:gYear <= ?birth && ?birth <= “1780”^^xsd:gYear)

filter exists {?x gvp:broaderExtended ?facet.
  filter (?facet in (ulan:50000003, ulan:50000002))
  filter not exists {
The Getty Vocabularies were established to meet the needs of art museum, visual resources, archives, and art library communities.

- Authoritative vocabularies -- indexing and retrieval of art information, architecture, conservation, archaeology; but not authoritarian = flexibility to achieve buy-in
- Why standards and controlled vocabularies? To make data more consistent, more usable in-house, and in broader environments
- Better able to withstand changes in technology and practices over time
- Greatest investment in cataloging is the human investment, with experts analyzing and recording data -- preserve that investment via standards
- Sources of data? For Getty Vocabularies, core initial data was compiled from existing Getty projects’ data and a few open data resources
- Vocabularies are compiled through contributions from qualified and trained contributors (visual resources collections, museums, art libraries, special coll., bibliographic indexing projects, international translation projects)
- Authoritative -- Contributors and published sources are cited
- Authoritative -- Persistent numeric identifiers for records, terms, and other data; co-referencing to other IDs for the same concept in other resources

Getty was a trailblazer
a) committing resources to standards and vocabularies for art information, and
b) bringing together disparate communities under Getty leadership
- AAT (Toni Peterson), ULAN and TGN were begun 1980s-1990s (director, Eleanor Fink)
- Informed by CIHA TAU (Thesaurus Artis Universalis)
- CONA and IA based on CDWA
- Getty Vocabulary Program formerly part of the Art History Information Program

https://www.getty.edu/research/tools/vocabularies/faq.html#1a
Getty Vocabularies: Our History

- We continue working with the international community
- E.g., ITWG (International Terminology Working Group), February 2020
- AAT translations, other contributions, implementations of Vocabs

https://www.getty.edu/research/tools/vocabularies/training.html#itwg

Getty Vocabularies: Based in Standards

Standards for data content and structure
There are several types of controlled vocabularies and related specifications relevant for art and other cultural heritage information

- Subject heading lists
- Controlled lists
- Synonym ring lists
- Authority Files
- Taxonomies
- Alphanumeric classifications

**Thesauri** Getty Vocabularies are Thesauri
- Ontologies
- Folksonomies
Getty Vocabularies: Based in Standards

- Thesaurus: A semantic network of unique concepts
- Thesauri may be monolingual or multilingual
- Thesauri may have the following three relationships:
  - Equivalence Relationships
  - Hierarchical Relationships
  - Associative Relationships

## Thesaurus:
- A semantic network of unique concepts

## Thesauri:
- May be monolingual or multilingual
- May have the following three relationships:
  - Equivalence Relationships
  - Hierarchical Relationships
  - Associative Relationships

### Objects Facet
- Furnishings and Equipment
  - Containers
    - <culinary containers>
    - <vessels for serving / consuming food>
  - rhyta
    - equivalence
  - rhion
    - rhyton
    - rhytons
    - rhea
    - rheon
    - rheons
    - ritón
    - ῥύτόν
    - ῥυτόν
    - 萊坦酒杯

---

### Getty Vocabularies: Based in Standards

- Compliant with national (NISO) and international (ISO) standards for thesaurus construction:
- Getty Vocabularies are compliant with / map to other standards:
  - CDWA (Categories for the Description of Works of Art)
  - CCO (Cataloging Cultural Objects)
  - VRA Core (Visual Resources Association core categories)
  - LIDO (Lightweight Information Describing Objects)
- Editorial rules based on common practice, reflect best practice

---

### Metadata Standards Crosswalk

https://www.getty.edu/research/publications/electronic_publications/intrometadata/crosswalks.html

<table>
<thead>
<tr>
<th>CRWA</th>
<th>CCO</th>
<th>CONA</th>
<th>CIDOC CRM</th>
<th>LIDO</th>
<th>CDWA Like</th>
<th>VRA Core</th>
<th>MARC/AACR (RDF coming soon)</th>
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<tbody>
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<td>1. OBJECT/ WORK (core)</td>
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<td>1.1. Catalog Level (core)</td>
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<td>1.2. Object/Work Type (core)</td>
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<tr>
<td>pType_Role_Rels. subject_id and physo_role_id [Link to AAT]</td>
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</tbody>
</table>
Getty Vocabularies: Based in Standards

Standards for data releases

- Compiled, merged, edited, and published by the Getty; refreshed monthly
- Open Data Commons Attribution License (ODC-By) v1.0
- Allows sharing, creation, adaptation of data with attribution

- Data is made available in various ways, use technical standards for releases
  - online searching, [https://www.getty.edu/research/tools/vocabularies/index.html](https://www.getty.edu/research/tools/vocabularies/index.html)
  - Web services APIs
  - Relational tables and XML format
  - Linked Open Data: structured and published to make it openly accessible and shareable on the Semantic Web: JSON, RDF, N3/Turtle, N-Triples formats
  - Links to LOD and Sparql end point [https://www.getty.edu/research/tools/vocabularies/lod/index.html](https://www.getty.edu/research/tools/vocabularies/lod/index.html)

Scope of Getty Vocabularies

The mission of the Getty Vocabulary Program (GVP) is to produce rich, structured, authoritative vocabularies, in compliance with international standards, that provide a powerful conduit for inter-related, linked, and meaningful research, discovery, and understanding of the visual arts and their various histories, in collaboration with the international community, and utilizing training and outreach to inform the field.

A primary goal of the Getty Vocabulary Program is to broaden and enrich the scope and coverage of the Getty Vocabularies to become ever more multilingual, multicultural, inclusive, and representative of the subjects and priorities of the GRI, the Getty, and global art history.

[https://www.getty.edu/research/tools/vocabularies/faq.html#1aa](https://www.getty.edu/research/tools/vocabularies/faq.html#1aa)
How Getty Vocabularies are used

Catalog Level: item
Classification: paintings
Work Type:
  painting (visual work) [AAT 300033618]
  scroll painting [AAT 3000336666]
Title: Scene of Early Spring
Type: repository
Lang.: English
Title: 宋郭熙早春圖 軸
Type: repository
Lang.: Chinese
Creator Display: Guo Xi, Song Dynasty
Index: Guo Xi (Chinese painter, 1023 - ca.1085 CE) [ULAN 500125758]
  Role: artist
Creation Date: 1072 CE; fifth year of Xining, Northern Song Dynasty
Index: Start Date: 1072
End Date: 1072
Materials Display: painted scroll
  Index: color (pigment) [AAT 300264870]
  Index: ink [AAT 300015012]
  Index: silk (silkworm material) [AAT 300014072]
  Index: paper (fiber product) [AAT 300014109]

Scope of Getty Vocabularies

AAT 300015012

ink (preferred, C.U, LC, English-P.D.U, SN)

Linking between the Getty Vocabularies

Links and relationship types are within and between vocabularies were normalized and published when LOD was created.
What is AAT?

AAT, the Art & Architecture Thesaurus®

The AAT is a thesaurus containing generic terms, dates, relationships, related to art, architecture, conservation, other cultural heritage

https://www.getty.edu/research/tools/vocabularies/aat/index.html
https://www.getty.edu/research/tools/vocabularies/guidelines/index.html#aat

- Used for work types, roles, materials, styles, cultures, techniques, etc.
- Generic terms, not proper names
- Multilingual; large translation projects are underway
- Facets are the upper levels of the AAT structure
- AAT is not organized by subject matter or discipline

Totals as of 25 Oct 2020

<table>
<thead>
<tr>
<th>Vocab</th>
<th>Records</th>
<th>Terms</th>
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<tbody>
<tr>
<td>AAT</td>
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<td>400,334</td>
</tr>
</tbody>
</table>

Scope of AAT

Associated Concepts
Terms for all abstract concepts and phenomena that relate to the study and execution of various areas of human thought and activity, including architecture and art in all media, as well as related disciplines. Also covered here are theoretical and critical concerns, ideologies, attitudes, and social or cultural movements
beauty, balance, connoisseurship, metaphor, socialism

Physical Attributes
Terms for the perceptible or measurable characteristics of materials and artifacts as well as features of materials and artifacts that are not separable as components. Included are characteristics such as size and shape, chemical properties of materials, qualities of texture and hardness, and features such as surface ornament and borders, round, waterlogged, brittleness

Styles and Periods
The names of art and architecture styles, historical periods, and art movements. Names of peoples, cultures, individuals, and sites are included if they designate distinct styles or periods
Yoruba, Louis XIV

Agents
Terms for designations of people, groups of people, and organizations identified by occupation or activity, by physical or mental characteristics, or by social role or condition
printmakers, landscape architects, corporations, religious orders Animals will also be included in this facet

Activities
Terms for areas of endeavor, physical and mental actions, discrete occurrences, systematic sequences of actions, methods employed toward a certain end, and processes occurring in materials or objects. Activities may range from branches of learning and professional fields to specific life events, from mentally executed tasks to processes performed on or with materials and objects, from single physical actions to complex games
archaeology, engineering, analyzing, contests, exhibitions, running, drawing (image-making), corrosion

Materials
Terms for physical substances, whether naturally or synthetically derived. These range from specific materials to types of materials designed by their function, such as colorants, and from raw materials to those that have been formed or processed into products that are used in fabricating structures or objects
iron, clay, adhesive, emulsifier, artificial ivory, millwork

Objects
Terms for discrete tangible or visible things that are inanimate and produced by human endeavor; that is, that are either fabricated or given form by human activity. These range, in physical form, from built works to images and written documents. They range in purpose from utilitarian to the aesthetic. Also included are landscape features that provide the context for the built environment
paintings, amphorae, facades, cathedrals, Brewster chairs, gardens

Brand Names
Names for materials, processes, and objects having names that are under trademark protection
Agfacolor (TM) Araldite (TM) Arches paper (R)
### AAT Sample Record

**AAT, Art & Architecture Thesaurus®**

http://vocab.getty.edu/page/aat/300041363

---

**ID:** 300190536

**Terms:**
- steel engravings (pref, en) [100041363]
- steel engraving (en) [1000299348]
- 鋼版刻印 (zh) [1000551901]
- staalgravures (nl) [1000482814]
- gravures sur acier (fr) [1000304335]
- grabados al acero (es) [1000429838]
- Stahlstiche (de) [1000655952]

**Associative Relationships**
- produced by ... steel engraving (printing process) [300190536]

**Hierarchical Relationships (poly)**
- Objects Facet
  - Visual and Verbal Communication (G)
  - Visual Works (hierarchy name) (G)
  - visual works (works) (G)
  - visual works by material or technique> (G)
  - prints (visual works) (G)
  - <prints by process or technique> (G)
  - <prints by process: transfer method> (G)
  - intaglio prints (G)
  - engravings (prints) (G)
  - steel engravings (visual works) (G)

---

**Note:** Prints made by the process of “steel engraving (printing process),” in which plates of steel or steel-faced copper are used, having replaced the use of less durable copper plates in the early 19th century.

- **Chinese (traditional):** 以鋼版雕刻程序製成的版畫
- **German:** Druck, der im Verfahren des Stahlstichs hergestellt wurde.
- **Spanish:** Estampas realizadas mediante el proceso de grabado en acero...

**Contributors:** VP, CHIN, AS, RKD, IM-SMB-PK, CDPB-DIBAM

**Sources:** Koschatzky, Die Kunst der Graphik (1988); Lucie-Smith, Thames & Hudson Dictionary of Art Terms (1986); Newman, Innovative Printmaking (1997)

---

**View of the AAT hierarchy**

- **Sub-facets (called “hierarchies”)** establish the context of the term
- **Guide terms in angled brackets**

**Work type:** stereoscopic photograph

---

*Patricia Harpring  Getty Vocabularies  2 November 2020*
View of the terms for a concept in AAT record

http://vocab.getty.edu/page/aat/300162872

- Terms for a single item, language
- Some systems or local cataloging rules do not allow linking at the term level

**Work type:**

stereoscopic photograph

AAT term_id 1000299214

---

Scope of AAT

Complying with standards and rules

Editorial rules are drawn from common practice, represent best practice

Example: AAT Preferred terms

- Preferred term: The word or phrase used most often in authoritative sources, scholarly literature to refer to the concept in that language

still lifes or still liVes?

- Preference for POS may vary
- Synonymity: All terms in one record must be exact synonyms, used interchangeably for the concept
- With allowances for parts of speech, some historical usage
What is ULAN?

ULAN, the Union List of Artist Names®

ULAN contains personal names, relationships, biographical information for artists, architects, firms, studios, repositories, patrons, sitters, both named and anonymous

https://www.getty.edu/research/tools/vocabularies/ulan/index.html
https://www.getty.edu/research/tools/vocabularies/guidelines/index.html#ulan

- For people and corporate bodies associated with the creation and documentation of art, architecture, and in related disciplines
- Includes current and historical associative relationships (e.g., students to teachers; firm and studios to members)

Totals as of 25 Oct 2020

<table>
<thead>
<tr>
<th></th>
<th>Vocab</th>
<th>Records</th>
<th>Terms</th>
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</thead>
<tbody>
<tr>
<td>ULAN</td>
<td>313, 260</td>
<td>935,147</td>
<td></td>
</tr>
</tbody>
</table>

Scope of ULAN

Persons, Artists
- Agami, Alyssa (Mexican sculptor, born 1955)
- Abbate, Ercole dell' (Italian painter, 1563/1573-1613)
- Abeyta, Narciso (Native American painter, 1918-1998)
- Ashmolean Master (Early Cycladic sculptor, active 25th century BCE)
- An, Yuan (Chinese architect, active 1404-1420)

Corporate Bodies
- Abbat family, dell' (Modenese painters, active 16th-17th centuries)
- Abbot Hall Art Gallery (British museum, contemporary)
- Abdullah Freres (Turkish photography and painting studio, 1858-1899)

Non-Artists
- Aah-Hotep, Queen (Egyptian queen, ca. 1560-1530 BCE)
- Abelard, Peter (French theologian, philosopher, 1079-1142)
- Ancaster, Mary Bertie, Duchess of (English aristocrat, died 1793)

Unidentified Named People and Firms
- Abdy, Sheila (artist)
- Facius, Friedrich Wilhelm (artist, born 1764)

Unknown People by Culture
- unknown Abakwariga (Abakwariga cultural designation)
- unknown Abbevillian (Abbevillian cultural designation)
- unknown Aztec (Aztec cultural designation)
ULAN, the Union List of Artist Names®
http://vocab.getty.edu/page/ulan/500060426

ID: 500060426
Names:
Katsushika Hokusai (en,ja-trans) [1500235399]
Hokusai (en,ja-trans) [1500235408]
Date: name taken by the artist in 1798, and used for his prints and paintings
Start: 1798 End: 1999
葛飾 北斎 (ja) [1500705416]
Shunrō (en,ja-trans) Date: gō (artist's name), used in his years of training, when painting hosoban (narrow prints) [1500235400]
Sōri (en,ja-trans) Date: gō used in early career, named taken from his Rinpa-school master Tawaraya Sōri [1500235401]
Kakō (en,ja-trans) Date: used for the production of commercial prints and books [1500235402]
Tatsumasa (en,ja-trans) Date: used for the production of privately published illustrations [1500235403]
Display bio: (Japanese printmaker, painter, 1760-1849
estimated Birth date: 1760
Death date: 1849
Nationalities: Japanese (pref)
Roles: artist
printmaker
painter
designer
calligrapher
draftsman
landscape artist
marine artist
figure artist
ukiyo-e artist
Gender: male
Birth and Death Places:
Born: Tokyo (Kanto, Japan) (inhab place)
Died: Tokyo (Kanto, Japan) (inhab place)

Events:
active: Tokyo (Kanto, Japan) (inhab place)

....... in Edo, modern-day Tokyo

Associative Relationships:
teacher of Taito, Katsushika, II
............(Japanese printmaker, active ca. 1820-1850)
child of Nakajima Ise
.............(Japanese mirror maker, 18th century)
possibly identified with ... Tōshūsai Sharaku
............. (Japanese printmaker, active 1794-1795)

Contributors:
VP, Avery,GRL,BHA,CCA

Scope of ULAN
Rich data and relationships
• E.g., ULAN, reciprocal relationships teacher/student
  1101 person – teacher of – person
  1102 person – student of – person

Japanese printmaker Katsushika Hokusai [was] teacher of Katsushika Taito II

• As with other relationships in vocabulary records, the relationship may be circumscribed with dates

ID: 500060426
Page Link: http://vocab.getty.edu/page/ulan/500060426

Katsushika Hokusai (Japanese printmaker and painter, 1760-1849)

<table>
<thead>
<tr>
<th>Relationship Type</th>
<th>Record Type</th>
<th>Name</th>
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<th>Start</th>
<th>End</th>
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</thead>
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<tr>
<td>1101 - teacher of</td>
<td>Person</td>
<td>Taito, Katsushika</td>
<td>ca. 1820-before 1830</td>
<td>1819</td>
<td>1830</td>
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<tr>
<td>1102 - student of</td>
<td>Person</td>
<td>Shunshō, Katsukawa</td>
<td>ca. 1777-1793</td>
<td>1777</td>
<td>1793</td>
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</tbody>
</table>
What is TGN?

TGN, Getty Thesaurus of Geographic Names®

TGN contains place names relevant to art, architecture, and related disciplines

https://www.getty.edu/research/tools/vocabularies/tgn/index.html
https://www.getty.edu/research/tools/vocabularies/guidelines/index.html#tgn

• Names, relationships, place types, dates, notes, coordinates
• Scope includes cities, nations, empires, physical features
• Focus on historical, regions, archaeological sites, lost settlements
• Built upon a skeleton of the modern world, as much as needed
• Thesaurus compliant with ISO standards
• TGN is not GIS, but may be linked to GIS, maps, etc.
• Co-references other geographic resources

Totals as of 25 Oct 2020

<table>
<thead>
<tr>
<th>Vocab</th>
<th>Records</th>
<th>Terms</th>
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<tr>
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<td>4,088,303</td>
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</tbody>
</table>

Scope of TGN

World
...Abbasid Caliphate (historical region)
...Africa (continent)
.........Abbyssinia (historical) (general region)
...Aden, Gulf of
...Ethiopia (nation)
.........Tigray (state)
.............Aksum (inhabited place)
...Gonja Kingdom (former nation/state/empire)

Extraterrestrial Places
...Milky Way Galaxy (galaxy)
...........Solar System (planetary system)
...............Jupiter (planet)
.......................Metis (moon)

• Historical and current world, administrative and physical features in same hierarchy
• Small number of Extraterrestrial Places
TGN Sample Record
TGN, Getty Thesaurus of Geographic Names®
http://vocab.getty.edu/page/tgn/7011179
Linked to other vocabularies, Other resources (LOC, NGA)

ID: 7011179
Names:
Siena (pref, it, en) [47413]
Siena [140808]
Sienne (fr) [1002860953]
Σιένα (el) [1002038443]
锡耶纳 (zh) [1002038446]
Сиена (ru) [1002038445]
シエーナ (ja) [1002038441]
Sienese (adj) (en) [1159549]
Sena Julia (hist.) (la) [181416]
Sena (hist.) [181414]

Date: Medieval
Start: 800 End: 1500

Contributors:
VP, BHA, Avery, GRI
Sources:
Annuario Generale (1980); NGA/NIMA database (2003-)
Library of Congress Authorities n 79013822;
UNESCO World Heritage Centre [online] (1992-); VIAF: Virtual International Authority File [online] (2009-)

What is IA?
IA, the Getty Iconography Authority ™
IA contains iconography names describing topics relevant to art, architecture, and related disciplines

- Includes the proper names of subjects not covered by other Getty Vocabularies
- Scope is multicultural and multilingual, grows through contributions
- Includes links to other sources where there is overlap, such as Iconclass and US Library of Congress subject authorities
- The IA is compliant with the Subject Authority of CDWA and CCO
- The IA has a thesaural structure; it includes equivalence, associative, and hierarchical relationships
- The IA is linked to the other Getty Vocabularies

Totals as of 25 Oct 2020

<table>
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<tr>
<th>Vocab</th>
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<th>Terms</th>
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<td>IA</td>
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<td>5,527</td>
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</table>
**Scope of IA**

**Religion, Mythology, Legend**
- Buddhist Iconography
- Buddhist allegory, symbolism, theme
- Buddhist characters
- Buddhist legendary places
- Buddhist narratives
- Four Encounters (Buddhist narrative)

**Literature and Performing Arts**
- Literary characters
- Beatrice (Italian literary character, Dante, ca. 1293)

**Named Events**
- Ancient history (Egyptian, Greek, Roman, other western)
- Battle of Salamis (Greek history, 480 BCE)

**Miscellaneous Topics**
- Miscellaneous Legendary Places
- Cockaigne (legendary place, medieval western)

---

**IA Sample Record**

IA, the Getty Iconography Authority™

http://vocab.getty.edu/page/ia/901000085

**Names**
- Avalokitesvara (en) [5000191]
- Avalokitesvara [5001067]
- Avalokitesvara [5003150]
- अवलोकितेश्वर (sa) [5001068]
-Spyan ras gzigs [5002308]

**Hierarchical Relationships**
- Legend, Religion, Mythology
- Buddhist Iconography
- Buddhist characters
- Avalokitesvara (Buddhist Iconography)

**AAT links**
- role(characteristic is ... bodhisattva
- symbolic attribute is ... lotus
- culture/religion is ... Mahayana (Buddhism)
- culture/religion is ... Theravada (Buddhism)

**Associative Relationships**
- associated with .... Krishna (Hindu iconography)
- counterpart is .... Guanyin (Buddhist iconography)

**Note**
The bodhisattva of infinite compassion and mercy; embodies the compassion of all Buddhas. This bodhisattva is portrayed in different cultures as either female or male...

**Contributors**
- VP, BHA

**Sources**
- Bowker, Oxford Dictionary of World Religions (1997);
- Huntington, Art of Ancient India (1985);
- Encyclopedia Britannica Online (2002-);

**LC:**
- LC control no.: sh 85010492
What is CONA?

CONA, Cultural Objects Name Authority®

CONA compiles titles/names with other metadata for works of art, architecture, and other cultural works

https://www.getty.edu/research/tools/vocabularies/cona/index.html
https://www.getty.edu/research/tools/vocabularies/cona/index.html#cona

- For works current and historical, documented as items or in groups, whether extant, destroyed, or never built
- May be used to record works depicted in visual surrogates, architecture, multiples (prints), and for other purposes

Totals as of 25 Oct 2020

<table>
<thead>
<tr>
<th>Vocab</th>
<th>Records</th>
<th>Terms</th>
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<tbody>
<tr>
<td>CONA</td>
<td>6,763</td>
<td>13,431</td>
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</table>

Scope of CONA

Built Works
Abbotsford House (country house; designed by William Atkinson, (British architect, ca. 1773-1...; constructed 1817-1819, 1822-1825; Melrose (Scottish Borders, Scotland, UK)... Attagudi (Siva temple) (temple (building); patron: Ganapatideva; unknown Telengana; first quarter of 13th century, Chandravalli (Karnātaka, India) ...)

Movable Works
Abraham Lincoln and His Second Son Thomas (Tad) (albumen print; Alexander Gardner (American, born Scotland, 1821 - 1882) (Am...; April 9, 1865; J. Paul Getty Museum at the Getty Center (Los Angeles, Los A...; 85.XM.285)
Boy with a Dragon (sculpture (visual works); Gian Lorenzo Bernini (Italian, 1598 - 1680); about 1617; J. Paul Getty Museum at the Getty Center (Los Angeles, Los A...; 87.SA.42)

Visual Surrogates
Foto arte minore / Max Hutzel (collection (object grouping); photographers: Max Hutzel and Roberto Sigismondi; 1960-1990)

Conceptual Works
Adam and Eve (engraving (print); Albrecht Dürer (German painter, printmaker, 1471-1528); 1504;...)

Unidentified Named Works
Paese (painting (visual work); "Breughel," attributed to in inventory; probably 16th/17th centuries; undetermined
### Scope of CONA

**CONA ID 700009685**  
Class: architecture  
Work Type: storehouse  
Work Type: destroyed work  
Title: Totocalco  
Title: Totocalli  
Creator: unknown Aztec; under Montezuma II  
Dimensions: unavailable  
Materials: masonry construction  
Current Location: Mexico City (Mexico)  
19 26 06 N, 99 07 53 W  
Location: Sacred Precinct (Tenochtitlan, Mexico) Type: former  
Date: 15th century  
Related Work: distinguished from Totocalco (aviary)  
**General Subject:** architecture  
Type: isness  
**Note:** Storehouse in 16th-century Tenochtitlan (now Mexico City). Totocalco and Totocalli were terms used interchangeably in different sources to refer to one of the two places, the first was a storehouse to the east of the main temple precinct where Mexica precious goods were kept, while the other was housed birds of the realm.  
**Contributors:** FloCo VP  
**Sources:** GRI, FloCo terminology (2019-); Sahagún, Historia general (1989) v3:1189; Simeón, Diccionario nahuaatl (1992) v13:49

### Recording information about lost works

- **Work was documented in contemporary sources, is now lost**

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**CONA Sample Record**

**CONA, Cultural Objects Name Authority®**

[https://vocab.getty.edu/page/cona/700000141](https://vocab.getty.edu/page/cona/700000141)

---

**CONA ID: 700002923**

**Titles/Names:**
- Temple of Heaven (en) [1000016889]  
- Tian Tan (zh-tr) [1000016890]  
- T’ien-t’an (zh-tr) [1000019041]  
- Himmelstempel  
- Templo  
- T’ien Temple  
- Tian Temple  
- Temple

**Contributors:** FloCo VP


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Class: architecture  
Work Type: storehouse  
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**Sources:** GRI, FloCo terminology (2019-); Sahagún, Historia general (1989) v3:1189; Simeón, Diccionario nahuaatl (1992) v13:49

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**Locations:**
- Location current Beijing (Beijing Shi [municipality]), (nation)  
- Address Note: 39°57'05"N 116°24'36"E  
- Dimensions [display] entire complex: 237 hectares  
- Mat & Tech [display] wood and stone  
- wood AAT 300011914 | stone AAT 30001176

**Style:** Chinese [AAT 300018322]  
- Taoist [AAT 300143666]

**General Subject:**
- architecture  
- Type: isness  
- religion and mythology  
- Extent: purpose

**Specific Subjects:**
- Heaven [AAT 300185658]  
- Extent: dedication  
- Chinese heaven [IA 901002236]

**Contributors:**
- JPGM VP  
- GRISC BHA BWR

**Sources:**
- Built Works Registry BWR3792244  
- Library of Congress Authorities online (2002-) n2011019454  

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**Ref: 881**

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**CONA ID: 700000141**

**Titles/Names:**
- Sky Temple  
- Tiantan  
- Tian Tan  
- 天壇  
- Templo del Cielo  
- Templo del Cielo  
- Heaven  
- Heaven Temple

**Contributors:**
- Congress online  
- Online Heritage

**Sources:**

---

**Ref: 881**
Recording information about lost works

- Reconstructed disassembled works held in different repositories or locations
- Common with manuscripts, paintings, sculpture, architecture
- May be varying opinions on reconstructions

Proposed reconstruction of Pisa Altarpiece, Masaccio

CONA ID 700009486 Proposed reconstruction of fragments of Masaccio’s Pisan altarpiece (after C. Gardner von Teuffel 1977).

CONA ID 700009486 Pisa Altarpiece (disassembled work; Masaccio [Italian paint 700009486]
Adoration of the Magi [N] [paintings, panel (paintings by f. 700006891] Martyrdoms of St Peter and St Paul [N] [paintings, panel] 700006903
Saint Andrew [painting work]; Masaccio [1527] 70000217 Saint Paul [N] (painting work); Masaccio [1527] 700006943
St Julian and St Nicholas [N] (paintings, panel (paintings by f.), Masaccio [1527] 700006929
The Crucifixion [N] (paintings, panel (paintings by f.), Masaccio [1527] 700006933
Virgin and Child [N] (paintings, panel (paintings by f.), Masaccio [1527] 700006899

Linking to works depicted in other works

CONA record for the house
CONA ID 70000090
Classification: architecture
Work Type: house
Title: Case Study House No. 21
Title: Bailey House
Title: CSH #21
Creator: architect: Pierre Koenig
Creation Date: 1956-1958; renovated 1998
Dimensions: 1 story, 1320 square feet, 4 rooms and 2 baths, on a 110 x 160 foot lot
Mat & Tech: steel frame and flat roof deck
Current Location: Los Angeles (California, USA)
Address Note: 34.116634 -118.391623; 038 Wonderland Park Avenue, Hollywood Hills, Los Angeles, 90046

CONA ID 700008539 Work Type: architectural drawing

CONA ID 700008539 Work Type: photograph

House is depicted in a drawing by architect and photograph by Julius Shulman
Also for linking visual surrogates linked to the works depicted
**Scope of CONA**

**Conceptual works, multiples, series of works**

--- series ---

Unique physical item → conceptual record for print → a series

--- Thirty-six Views of Mount Fuji: First Series ---

- Great Wave off Kanagawa (multiple)

--- L’arc de la vague au large de Kanagawa [N] ---

--- The Great Wave [N] ---

--- The Great Wave off Kanagawa [N] ---

--- Under the Wave off Kanagawa [N] ---

--- Under the Wave off Kanagawa [N] ---

--- Under the Wave off Kanagawa [N] ---

--- Under the Wave off Kanagawa [N] ---

--- Under the Wave off Kanagawa [N] ---

--- Great Wave at Kanagawa ---

Creator: Katsushika Hokusai (Japanese, 1760–1849); published by Eijudo Japan

Creation Date: 1827-1837

Subject: landscape Specific: Mount Fuji ocean genre scenes meisho-e

Current Location: not applicable

Style: Edo

Dimensions: 36 prints, average plate size: 24 x 37 cm

Mat & Tech: and Techniques: woodcuts, polychrome ink and color on paper

Description: Hokusai produced two series of Views of Mt. Fuji. This is the first series

--- Great Wave at Kanagawa ---

Creator: Katsushika Hokusai (Japanese, 1760-1849); published by Nishimura Eijudo (Japanese, 19th century)

Dimensions: 25.7 x 37.9 cm (10 1/8 x 14 15/16 inches)

Subject: landscape Specific: Mount Fuji ocean wave

Current Location: Metropolitan Museum of Art, New York, New York, USA

**Getty Vocabularies: The Community**

- Target audiences are researchers, art museums, special collections, art libraries, and archaeological and conservation projects, although other audiences are frequent users as well
- Developers and information providers
- The researchers themselves are also now users

**Contributors to the Getty Vocabularies**

- Institutions that catalog or index art, architecture, related disciplines; translation consortia

**Users of the Getty Vocabularies**

- Catalogers, researchers, vendors (e.g., TMS)
- Examples of users include Europeana, CHIN, American Art Collaborative (AAC), LinkedArt
- Through links or contributions to other resources, e.g., VIAF (Virtual International Authority File)
Contributors to the Getty Vocabularies

https://www.getty.edu/research/tools/vocabularies/contribute.html

Who are the contributors?
• Getty projects
• Over 300 institutions, consortia, research projects

How is the data generated?
• Contrib. may research and create original data for the purpose of contribution
  E.g., translations: Spanish, Dutch, Chinese, German, French, Croatian, Portuguese, Japanese
• Or may map data already collected in the course of their own work
  E.g., repositories and documentation projects, research projects
• Contributions = 10s of thousands per year

Examples of Contributors to Vocabularies

<table>
<thead>
<tr>
<th>Provenance Index</th>
<th>GRI Photo Archive</th>
<th>Getty</th>
<th>GCI</th>
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<tbody>
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<td>GRI Library</td>
<td>National documentation agencies, consortia</td>
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 Getty

Image collections, libraries

Art repositories

Publishers

Research projects
Contributors to the Getty Vocabularies

- Compiled resources = multiple contributors, separate records for same entity
- Published as unified records for end users
- Rather than clustering, Getty vocabularies merge the data into a homogenous whole
- The attribution to the contributor and sources are retained

Getty vocabularies merge contributed records

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<tr>
<th>Contributor</th>
<th>ULAN_500017409</th>
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<tr>
<td>Witt</td>
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Names: Guardi, Francesco
Nationalities: Italian
Roles: artist painter landscapist

Users of the Getty Vocabularies

- Online usage
- Vocabularies are always among top resources accessed at GRI

Top 15 GRI-wide page views per month

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Users of the Getty Vocabularies

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</table>

*Not including robots, worms, or replies with special http address*

- Data release files also have high numbers of users
- Relational Tables, XML, APIs
- Example illustrates LOD with very high use for one month
- AAT is also available at satellite sites in Germany, Taiwan, Chile, the Netherlands
- Vocabularies are available in various vendor systems

Getty Vocabularies: The Future

- Continued contributions focusing on our core mission
- Multilingual, multicultural, inclusive, Ancient Worlds Now
- Make public criteria for contributions, targeted vs opportunistic
- Establish clear guidelines, more pre-processing by contributors
- Methods to aid contributors, training, tools (e.g., OpenRefine, workshops, tutorials)
- Co-referencing of overlapping, similar resources; multiple IDs
- Publication is Open and Free of charge (LOD, and all formats); relational tables and XML may be discontinued
- Formats for export and integration in other resources
  - Advanced and useful to emerging technology
  - Hope to not exclude users who are not wealthy, elite technical support
Goals: Increased multilingual, multicultural, inclusive Vocabularies

**Nat./Cultures in ULAN:**
Records total: 305,684 (as of Feb. 2019)
Nat/cultures total linked: 351,773
[a person may have multiple nationalities, cultures]

**Partial list of Nationality/Culture/Ethnicity**
European 212,286
American 55,933
African American 517
Native American, First Nations 4,394 [Heard]
Mexican, Central-South 11,652
African 2,588
Middle Eastern 2,006
Indian subcontinent 1,370
East Asian 6,270
Canadian 4,812
Other 49,945

Status: Current ULAN is heavily European, but our goal is to add more non-Western.

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Goals: Increased multilingual, multicultural, inclusive Vocabularies

**Languages in AAT**
- 136 different languages as of 27 April 2019
- No of terms for top 20 languages:
  - English 165,905
  - Chinese 91,839
  - Dutch 63,336
  - Spanish 56,188
  - German 20,959
  - Italian 14,444
  - French 6,813
  - Latin 2,141
  - Portuguese 247
  - Greek 70
  - Nahuatl 49
  - etc.

Status: Current AAT is in process of receiving several translations and increasing multilinguality.
Increasing usage around globe

Distribution of users, Vocabularies online search

149 countries total; top 50 in a year

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<tr>
<th>Country</th>
<th>Users</th>
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<tbody>
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Increasing usage around globe

Tool for working with messy data: cleaning it; transforming it from one format into another; and extending it with web services and external data

https://www.getty.edu/research/tools/vocabularies/obtain/openrefine.html
Linking the Getty Vocabularies

Improving interconnectivity:

Relationships from the Getty Vocabularies to other resources
Thank you.